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THE SEVENTY-FIRST ANNUAL CONVENTION OF THE AMERICAN PHARMACEUTICAL ASSOCIATION WILL BE HELD IN ASHEVILLE, N. C., DURING THE WEEK OF SEPTEMBER 3, 1923.

The 1923 meetings of the American Conference of Pharmaceutical Faculties and the National Association of Boards of Pharmacy will also be held in Asheville during the week of September 3.

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M. LOUIS PASTEUR

Born at Dôle, Jura, France, December 27, 1822
Died near Saint-Cloud, September 28, 1895

LOUIS PASTEUR.
(1822–1895.)
(From a bronze by Theodore Riviere. Courtesy of W. B. Saunders Company, Philadelphia.)

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

VOL. XI DECEMBER, 1922 No. 12

LOUIS PASTEUR.

The celebration of the centenary of the birth of the eminent French scientist, M. Louis Pasteur, will encourage scientific research. No name among scientists is better known to the people than his; when, in 1907, a vote was arranged for by a Paris newspaper to determine "who in the estimate of the French people was the greatest Frenchman of the 19th century," more than fifteen million votes were cast, and in the result the Scientist ranked first and Napoleon Bonaparte fourth.

The value of Pasteur's discoveries to France has been estimated in different ways, but inadequately; his benefactions to the world are beyond computation. It will be the first time in the history of nations that the picture of a scientist has adorned postage—when that of Pasteur is placed on the fifty-centime stamp. The Pasteur Exhibition at Strasbourg, which opens June 1, 1923, will be an international affair— nations will pay tribute to one who has served his country and the world, by a service which increases in value through researches of the laboratories, an estimate which the people are just beginning to apply—therefore, the statement made in the opening lines of this comment. In nearly all of the large cities and university towns of the United States celebrations, commemorating the life and work of Louis Pasteur, have been arranged for during December.

A Paris correspondent of the *Journal and Pharmacist*, September 30, 1922, in referring to the Centenary, writes:

"In this connection it is interesting to note Pasteur's close association with pharmacy at one time during his career, and the Société de Pharmacie de Paris now recalls with pride the fact that it can number the great scientist amongst its laureates. Pasteur's connection with pharmacy came about in the following manner: In 1851 the Société de Pharmacie de Paris offered a prize of 1500 francs (£60) for the best solution of the following two problems: (1) Do tartrates exist actually containing the racemic form of tartaric acid? (2) Determine the conditions under which tartaric acid might be transformed into its racemic form. Pasteur was at that time professor of chemistry in the faculty of science in the University of Strasbourg, engaged in his memorable researches on the various tartaric acids and paratartaric acid and on the correlation between optical rotation and crystallization. He sent in his papers to the Society, for which he was awarded the prize. Half of the amount of the prize he devoted towards purchasing certain necessary apparatus, which lack of funds prevented the University from acquiring for the use of his laboratory. At that time the Government allowed Pasteur the ridiculously small amount of 1200 francs (£48) per annum to cover all expenses connected with giving the lectures on

chemistry and work in the laboratory, and out of this allowance Pasteur had as well to pay the wages of the boy employed to clean up in the laboratory."

"In the field of observation," Pasteur said, "chance only favors the mind which is prepared;" his work and life indicate that this was a leading thought with him, and, because he knew, the excellence and simplicity of his experiments distinguished his work and the soundness of his deductions. A writer has said that his most remarkable characteristic was the intuition with which he saw how one discovery led on to another. Émile Duclaux, in "Pasteur—The History of a Mind"* says: "Pasteur's scientific life had an admirable unity—it was the logical and harmonious development of one and the same thought. Of course he did not know when he made his first studies in crystallography that he would end by discovering a means of preventing rabies. But neither did Christopher Columbus know when he set forth that he would discover America. He only divined that by going always in the same direction he would find something new. So with Pasteur."

It was as a young man that Pasteur discovered that crystals will deviate light to the right or left according to the arrangement of their hemihedral facets on right and left. Jean Baptiste Biot, the venerable physicist, at first skeptical, was convinced by Pasteur's demonstration, which also proved to him that the latter possessed the researcher's essential attribute of patient observation.

Every member of the A. Ph. A. has read a book on, or a biographical sketch* of, the Scientist, so only a few data for historical reference will be recorded. It is surprising that different dates for his birth have been given in biographies and other writings.

Louis Pasteur was born at Dôle, France, December 27, 1822, the son of a tanner. The boy received his first schooling at Arbois, in the college of which parish the head master was M. Romanet, who influenced Pasteur's career, imbuing him with the ambition to study chemistry in Paris. He graduated from the École Normale, Paris, in 1847. In 1848 he became professor of physics at Dijon and in the following year he accepted the position of professor at Strasbourg. He was summoned to Lille as dean and professor of chemistry in the faculty of sciences in 1854. Here he remained until 1857, when he went to Paris as scientific director of the École Normale Superieure and was elected a member of the Institute.

In 1863, he became professor of geology, physics and chemistry at the École des Beaux-Arts, and from 1867 to 1889 was professor of chemistry at the Sorbonne. Later, he founded the Pasteur Institute at Paris where he carried on his researches until his death and where he was surrounded by such men as Chamberland, Calmette, Metchnikoff, Yersin, and Roux who became his successor. He died near Saint-Cloud, September 28, 1895.

If this, the centenary year of Pasteur's birth, does not see a larger endowment of the research departments of the colleges it will not be because the money is not needed to maintain experts and encourage teachers and students in the kind of work, or related investigations, to which Pasteur devoted his life. E. G. E.

* "Pasteur—The History of a Mind," by Émile Duclaux, translated by Erwin F. Smith and Florence Hedges, W. B. Saunders Company. See review in JOURNAL A. PH. A., October 1920, p. 1032.

* A recent sketch will be found in *Una*, August 1, 1922, the journal of the Royal Victorian Trained Nurses' Association, Melbourne.

EDITORIAL

E. G. EBERLE, EDITOR 253 Bourse Bldg., PHILADELPHIA

THE GOING AND THE COMING YEAR.

PROGRESS has been compared with the seed that is brought to blossom and the blossom that comes to fruition. Our activities and developments are continuous—our work is builded on the past. The results of a year's work are appraised according to the viewpoints of individuals; the possibilities of an association in a succeeding year may be differently estimated, but they are largely dependent upon the energetic enthusiasm of its members—their belief in the usefulness of the association and their ability to accomplish the purposes of the organization.

No attempt will be made to speak of all of the accomplishments of the American Pharmaceutical Association during the year, for these have only recently been reported in the pages of the JOURNAL; at this time the references, for reasons indicated, will be very brief.

A plan for readjusting the activities of the Association for better and greater service of American pharmacy was adopted at the Cleveland meeting, and this may be termed the unfolding of thoughts in a plan of action; further progress is to come through its activation. A desire to promote the usefulness of the Association was evidenced by the purpose to coördinate the efforts of national and state organizations; the subject is ably presented by Chairman E. F. Kelly in the editorial of the September JOURNAL, p. 664.

Research has been perhaps too frequently the theme of the JOURNAL'S editorials but in the list of important accomplishments of this year the organization of the National Conference on Pharmaceutical Research must be assigned a prominent place. The last number of the JOURNAL recorded the minutes of the Scientific Section and also investigations promoted by the Association's Research Fund, and others are still to be printed.

Codes of ethics are the means by which groups keep their members socially victorious over self and develop an interest in those served. The first code of ethics of the American Pharmaceutical Association was approved soon after its organization; a revised code was adopted at the Cleveland meeting.

The American Pharmaceutical Association has always stood for enforcement of law; no organization has more promptly recognized the necessity for regulations applying to pharmacy nor has any body more earnestly formulated laws governing the sale of narcotics, with due and rational regard for the practice of medicine, while safeguarding the public. In legislative matters the Association has been consistently active during the year. A Model Pharmacy Law is nearing completion, and foundations have been laid for properly defining a poison. A Year Book has been completed and copy for another volume of this important reference work is ready for the publishers. Progress is being made with the A. Ph. A. Book of Formulas, and that in the revision of the National Formulary has been reported from time to time, promising not only a practical standard but one which shows the advancement of pharmacy during recent years. The revised edition of the Pharmaceutical Syllabus has been completed and that, too, speaks well for the

observant and careful revisers. The U. S. Pharmacopoeia is not a product of the Association, but nearly all of the members of the committee in charge and other officials of the Revision are members. The work promises to maintain the standing attained by this official standard and conforms with modern advancement in pharmacy.

These few notations are sufficient to encourage us to meet the coming year with renewed assurance of continued progress. The membership of the Association has grown, necessitating a larger monthly printing of the JOURNAL; fortunately there has been an increased net income which offsets the larger corresponding expense of production. Related publications of other organizations dare to request their members to speak for the encouragement of their official organs, so that their income may be increased and their service improved and, in that same spirit, we invite the active coöperation of our members.

The possibilities of the Association are largely dependent on the morale of the members. "Morale," as Herman J. Stich has said, "is born of confidence—the confidence created by faith and determination, by enthusiasm and unflagging energy." E. G. E.

REËDUCATION OF PHARMACISTS.

MANY medical colleges provide opportunities for physicians and surgeons to come back to the class room, clinic and lecture hall for the betterment of their powers of serving the public health. In most instances, perhaps, these special courses are designed for surgeons and physicians who wish to brush up on specialties or get the benefit of later science in surgery or the general practice of medicine. Related work is arranged for in programs of local medical associations, which include occasional invitations to experts from other localities. The need of reëducation by medical men is quite generally recognized and is a commendable practice which inures to the public's health and welfare, and it is the recognition of the latter results, by the public, that has proved of great value to the medical profession.

The situation as to pharmacy is somewhat different—relatively more information can be gained for the pharmacists' application from publications than is possible in surgery and the specialties in medical practice, wherein observation is of great importance—the pharmacy owner can employ those who have had later opportunities in pharmacy schools. It is possible, however, to utilize colleges and schools, local, state and national organizations to a larger extent by a greater number for reëducation in pharmacy. Reference was made in the November issue of the JOURNAL to an article by Prof. Wilbur L. Scoville on "Highbrow Stuff and the Prescription Counter," which is applicable, in a degree, to the subject. More practicing pharmacists should become active in the Branches of the American Pharmaceutical Association; they should assist in arranging the programs so they will be of interest and service to them. Coöperation of hospital pharmacists and of those engaged in retail pharmacies will prove helpful to both classes and subserve pharmacy in general, and such participation and reëducation will produce other values, for which pharmacists are constantly striving. E. G. E.

May you have the joy of Christmas charity, and the happiness of health and success during 1923.—THE EDITOR.

THE CHEMISTRY OF HEPTANE AND ITS SOLUTION.*

BY EDWARD KREMERS.

5. Some Three-Phase Observations.

The first of these observations was made because of certain phenomena noticed in connection with an experiment made in the spring of 1919; the second in connection with certain lactone experiments that were started in the fall of 1921. Inasmuch as they have already led to similar observations with other materials and may lead to many more, it seemed worth while to record them.

I. Under date of October 14, 1919, the following observations were recorded: To 10 Gm. of molten phenol, 20 cc of heptane dried over sodium and 20 Gm. of arsenic trichloride were added. The mixture was shaken but separated into three layers. It was again shaken, this time more violently, but again separated into three layers and was allowed to stand for several days.

In earlier experiments it had been observed that arsenic trichloride is miscible with heptane in all proportions. In order to determine the solubility of crystalline phenol in heptane, the crystals had been liquefied by heat before the solvent was added. After shaking solute and solvent and allowing the mixture to cool, the excess of phenol separated in beautiful needle-shaped crystals. Upon melting these crystals and resolution of the molten phenol in heptane, several interesting observations were made which, however, have nothing to do with the triphase observations here recorded. With these observations having been made previously, the separation of the mixture of phenol, heptane and arsenic trichloride seemed rather peculiar.

When the phenomenon was brought to the attention of those colleagues of the writer who have specialized in physical chemistry, he was informed that they did not know of a similar case. One of them informed the writer that for the purpose of lecture demonstrations he had been in the habit of camouflaging, as it were, a triphase by carefully forming layers of carbon disulphide, water and petroleum. In a sense this is not a true triphase, certainly not a permanent one, for, upon shaking, the carbon disulphide and petroleum will mix, resulting in a two-phase affair.

After standing for several days, the triphase liquids were heated in an acetylation flask with glass-ground air condenser tube. At 60° no appreciable change in the depths of the layers was noticeable. Above 70° small bubbles (probably hydrogen chloride) rose, but not very many. At about 80° the two lower layers became active. The lowest layer rose at the side of the flask to the lower surface of the uppermost layer, spread out below the surface of contact and then dropped back like a water spout as indicated in the accompanying figure. A little later two such spouts formed, then three and finally they became too numerous to be differentiated. This stage was superseded by what might be called a homogeneous emulsion and, as the lower mixture began to boil smoothly, the liquid became clear. There were now two distinct layers, the two lower ones of the triphase having blended into one. The uppermost layer of the triphase seemingly had held its own for it did not appear to have diminished

* Scientific Section, A. Ph. A., Cleveland meeting, 1922.

in depth. Assuming that the uppermost layer consisted principally of heptane, which boils at 98° to 99°, it is noteworthy that the lower mixture, consisting principally of phenol and arsenic trichloride, not to mention their reaction products at present, boiled actively before the upper hydrocarbon layer was in ebulition.

After about an hour's heating, the heat was withdrawn. The lower layer soon became turbid, separating into two layers so that the original triphase was reëstablished. Since then the change from the triphase to diphase by the aid of heat has been repeated again and again. At the time of writing, almost three years after the experiment was started, the change was once more effected only to return to the triphase as usual.

It would be of no little interest to determine, as accurately as possible, the composition of each of the three phases at temperatures varying from 0°, 10°, 20° up to 70° and then to ascertain the composition of each of the two phases at 80°+. Under pressure, it may be assumed that a monophase would ultimately result with the further rise in temperature. In this connection it should be pointed out that the analyses may not prove quite as simple as would seem at first sight. Experiments as well as observations have revealed, as might be expected, that arsenic chloride is not without chemical reaction on both phenol and heptane. For a first series of determinations, however, these reaction products might be ignored for the time being and the three phases regarded as merely physical solutions.

II. The second observation to be recorded in a preliminary manner was first made last fall when the writer had occasion to include the lactone, supposed by Professor E. R. Miller to be contained in catnep oil, in a series of experiments with these "inner anhydrides" of hydroxy acids. The lactone had been removed from the oil by shaking the latter repeatedly with a 10 percent potassium hydroxide solution until the volume of the oil was no longer reduced. From the aqueous alkaline solution the lactone was precipitated in the form of an oil by means of hydrochloric acid. The appearance of the non-acid aqueous layer indicated that appreciable lactone (or corresponding hydroxy acid) was held in solution or rather suspension or probably both. Hence this aqueous portion was shaken with heptane to recover lactone or acid or a mixture of both. While standing in a large separating funnel from which most of the aqueous layer had been withdrawn it was observed that three layers had formed: 1, an aqueous layer (containing potassium chloride from the reaction indicated above); 2, a yellowish oily layer, corresponding to the lactone the bulk of which had previously been separated mechanically; and 3, the heptane solution, presumably saturated with lactone, as the lactone is, no doubt, saturated with heptane or water or both (provided the one does not well nigh exclude the other).

The bulk of the lactone which had been separated from the catnep oil soon crystallized. One lot crystallized after standing a few days, a second lot after standing from eight to ten days. The oily layer referred to above as "lactone," however, has neither crystallized nor shown the signs of a crystal thus far after several months' standing. If it were removed from the water below and the heptane above it might be expected to crystallize as have other samples. Whether this experiment can be repeated with pure lactone which has since been obtained in quantity, remains to be seen.

6. On the Solubility of Several Gases.

The solubility of the hydrohalogens in heptane has been reported on, not only in a general way (No. 1), but the strength of the respective solutions at different temperatures has been studied and reported by Sherk (Nos. 3 & 4). Among the earliest experiments recorded (No. 1) the solubility of ammonia is indicated in connection with the observation that when a heptane solution of hydrogen chloride is added to a heptane solution of ammonia, insoluble ammonium chloride is formed by addition. Since then the solubility of other gases has been studied more or less, *e. g.*, that of hydrogen sulphide as reagent for some of the heavy metals in heptane solution as oleates, etc. The object of this report is not to render a complete account of numerous experiments and observations, but to pick out a few instances that are rather striking for reasons to be pointed out.

I. Previous reports on the solubility of hydrogen chloride in heptane, qualitative and quantitative, have been referred to above. In this brief report the writer desires to supplement the earlier reports by recording an observation not without a lesson. Every beginner in chemistry is acquainted with the lecture experiment that is made in general chemistry to demonstrate the affinity of hydrogen chloride for water. A large glass flask is filled with hydrogen chloride (gas), and the inverted flask connected by means of a long tube with a reservoir of water. In order to be able to make the demonstration at a given moment, the tube is provided with a stopcock not shown in the accompanying figure. As soon as the stopcock is opened, the affinity of the water for the hydrogen chloride, or *vice versa*, becomes apparent by the rising of the water in the tube. As the water overflows, the absorption becomes more rapid due to the increased surface of the solvent. The water may even spout into the large flask until it has risen to the level of the tube. In case all of the air in the flask has been replaced by hydrogen chloride, the flask will ultimately be filled with water.

This experiment was repeated, not only with water, but with pinene and heptane. The former was chosen as an unsaturated hydrocarbon known to combine chemically with hydrogen chloride to form the so-called artificial camphor of Kindt. The latter was selected because it is saturated, hence did not admit of the ready chemical explanation applicable in the case of water ($HCl.5H_2O$) and of pinene ($C_{10}H_{16}.HCl$). The striking fact was that the heptane rose in the tube almost as rapidly as the pinene and did not rise very much slower than did the water.

The offhand explanation is that we have here a case of physical solution. However, before making such a dogmatic assertion, it may be well to consider other possible explanations, though they may not have much probability in their favor.

Every organic chemist at all familiar with the evolution of his science knows that the point of view of organic chemistry as the chemistry of the hydrocarbons and their substitution products did not always obtain. Liebig's definition of organic chemistry as the chemistry of the compound radicles was based upon the parallel with the inorganic chemistry of acids, bases and salts, which, in turn, was nothing more than an imperfect systematization of Lavoisier's chemistry of

oxygen. Liebig's scheme had to be abandoned long before the inorganic parallel, upon which it was based, was given up. Kekulé's definition of organic chemistry as the chemistry of carbon compounds has led nowheres as a principle of systematization though it served the extremely useful purpose of drawing a hard and fast line—such as does not exist in nature—between organic and inorganic.

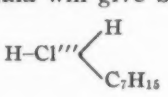
During the early days of Kekulé's definition the hydrocarbons were, in part at least, regarded as the hydrides of the alkyl radicles, thus reflecting their method of preparation symbolized by the following formulas:

$$R'OH + HI \longrightarrow R'I + H_2O$$
$$R'I + IH \longrightarrow R'H + H_2$$

In accordance with this viewpoint they were regarded as, *e. g.*, ethyl hydride, butyl hydride, pentyl hydride, etc., before their respective names became ethane, butane, pentane, etc. This viewpoint has largely been lost to the modern student of organic chemistry. True, it is a one-sided viewpoint. The reduction, by means of hydrogen iodide, of diodides such as CH_3CHI_2 (from acetaldehyde) or of CH_3-CI_2CH_3 from acetone might as well suggest such names as ethyledene dihydride, aceto dihydride (in other words, alkyledene dihydrides). Theoretically, we might carry this point of view *ad absurdum*. However, it is not from the point of view of nomenclature that we wish to consider this problem.

The definition of organic chemistry that it is the chemistry of the hydrocarbons and their substitution products, a definition not at all out of harmony with facts, implies that one hydrogen after another in the hydrocarbon may be replaced step by step by an equivalent element or radicle or both. That there is a decided difference in replaceability is clearly understood, though it has been difficult to formulate general rules. Thus, *e. g.*, it was formerly supposed that in a methane hydrocarbon all hydrogen atoms connected with one carbon atom were replaced by halogen before this substituting agent attacked the hydrogen of another carbon atom. This rule was brushed aside by Victor Meyer a generation ago when he showed that, *e. g.*, in hexane he could induce the halogen to substitute one hydrogen atom in connection with each carbon atom before a second halogen combined with any of the carbon atoms in connection with which monosubstitution had taken place, provided the substitution took place in the presence of certain chemicals employed by him. No doubt these agents are to be regarded as catalyzers so long as we do not understand how they act.

All of this is reviewed for the purpose of pointing out that the hydrogen atoms of a given hydrocarbon are not necessarily alike when it comes to substitution. Hand in hand with our concepts of substitution go our concepts of radicles. Varying with the point of view, we conceive of different radicles, *e. g.*, in connection with acetic acid: $CH_3CO.O$—(the ionists point of view); CH_3CO—(the acyl viewpoint); etc. So in connection with the hydrocarbons it may not be amiss to revive the alkyl hydride viewpoint of the older organic chemist of the middle of the last century. If we do, it is possible to conceive of heptane forming an addition product with hydrogen chloride, though this hydrocarbon is regarded as structurally saturated. The following formula will give better expression to this idea, *viz.*,



where heptyl hydride is supposed to have been added to halogen which has assumed trivalence to make possible this addition. Naturally, all we know about the valence of the halogens causes us to believe that such a compound, if formed, will be very unstable indeed. As, *e. g.*, the HCl addition product of cineol, a completely saturated compound itself, is broken up into its components by water, so the heptyl hydride "compound" of HCl may be even less stable. This explanation is given here for what it is worth merely to guard against any dogmatic statements about purely physical solution as the only way to account for the phenomena here recorded.

II. A year or two ago, an associate in plant physiology called me up over the 'phone wanting to know whether carbon dioxide is soluble in petroleum. It was one of those questions that will cause persons with some sense of humor left to smile rather audibly. No doubt, many if not most of our examiners of candidates for the doctor's degree find questions of this sort perfectly proper, but these seldom have the saving grace of the class referred to above. The sense of humor was doubly keen in this case because the writer was in a position to give an answer to the question. This possibility demands an explanation.

In connection with work being done on pinene, the question of the solubility of carbon dioxide in this hydrocarbon came up and the only answer the writer could give was: "Try it out." The results of the experimental "try out" are recorded in a separate report.[1] Inasmuch as pinene is an unsaturated hydrocarbon, the possibility of chemical addition was not excluded from a purely theoretical point of view, though the results showed that any chemical compound, if formed at all, was, for the most part, exceedingly labile. It was of some interest, therefore, to ascertain something about the solubility of carbon dioxide in heptane. Benefiting by the previous experience with pinene, the heptane was directly supported in the graduated tube of a Lunge nitrometer by lime water instead of water. In a comparatively short time the CO_2 had passed through the heptane as was indicated by the formation of calcium carbonate in the lime water. Unfortunately the notebook in which these experiments have been recorded is lost, hence no exact data as to time can be given at present.

PHYTOCHEMICAL NOTES.*

90. The Seeds of *Bixa Orellana*.

BY S. S. AIYAR.

The seeds of *Bixa orellana* L., which yield the Annatto, have been investigated repeatedly because of their pigment which is used extensively in the dairying industries. Other constituents of the seed have received little or no attention.

The immediate impulse for this preliminary investigation along more general lines was twofold: First, the close relation between this species and that yielding chaulmoogra oil[1,†] and the medical importance which the latter has acquired recently, suggested an examination of the fatty oil for chaulmoogric acid; second, a visit to Mr. Marshall's factory in this city and the sight of a large quantity of

[1] W. F. Sudro, "Absorption of Gases by Pinene."

* From the laboratory of Edward Kremers.

[1,†] For references see Bibliography at end of article.

seed that goes to waste after the pigment has been washed off well nigh impelled the visitor to use at least a small part for scientific purposes.

MOISTURE.

The red seeds, when ground, were subjected to distillation with xylene in order to determine the moisture content. The yield was 3.0 percent and 3.1 percent, respectively. The xylene left in the distilling flask was filtered while hot. The filtrate was dark orange in color and upon cooling precipitated the orange-colored dye which it had dissolved while hot.

The waste seeds which in the factory had been deprived of their pigment coating yielded but 2.3 percent and 2.1 percent, respectively, of water. The lower moisture content is readily understood when one recalls that these had been dried artificially after having gone through the manufacturing process.

ASH.

Ash determinations of both the original and processed seeds were made. The results are herewith tabulated:

	Original seeds, percent.		Processed seeds, percent.	
	I.	II.	I.	II.
Insoluble ash	2.43	2.27	3.35	3.52
Soluble ash	2.39	2.46	2.47	2.44
Total ash	4.82	4.73	5.83	5.97

The larger soluble ash content, hence also a larger total ash content, is readily understood when one recalls the method of processing employed.

ETHER EXTRACTIVE.

The close botanical relation of this plant to that yielding the chaulmoogra oil made it particularly desirable to ascertain something about its fatty oil content as well as about the nature of the fatty oil. For this purpose 100 Gm. of finely powdered processed seed were extracted in a Soxhlet with ether for eight hours. The processed seed was taken for this experiment in order to avoid the complications that would arise from the red pigment. The ether solution was yellow, not red. Upon evaporation of the ether there remained 2.55 percent of residue which was liquid in part, and in part consisted of small crystals. A second extraction with ether added but little, about 0.2 percent, to this residue.

HEPTANE EXTRACTIVE.

Inasmuch as it was decided to subject larger amounts of seed to extraction with petroleum ether, it was deemed desirable first to extract on an analytical scale with heptane. Hence 125 Gm. of finely ground seed were extracted in a Soxhlet with heptane for about 8 hours. Again the heptane solution was yellow, not red, showing that all of the red pigment had been removed in the processing. Upon recovery of the heptane, a residue amounting to 2.8 percent remained. It also was oily in part, and in part consisted of small acicular crystals.

ALCOHOLIC EXTRACTIVE.

The powdered seeds, after having been exhausted with ether, were transferred to a flask and extracted with boiling alcohol for three hours. The yellow alcoholic solution was filtered while hot and the seeds extracted a second, third and even a fourth time by boiling with alcohol. The residue from the alcoholic

solution was ropy in consistence and amounted to 9 percent of the processed seeds. The seeds previously extracted with heptane gave 9.4 percent of alcoholic extract.

FATTY OIL.

In order to obtain a larger amount of fatty oil $25^3/_4$ pounds of crushed seeds, from which the pigment had been removed in the factory, were extracted in a large extraction apparatus with "fractol" for about ten days. Even then the extraction was imperfect as is shown by the yield, which amounted to but 1.7 percent. The oil was a thick greenish brown liquid.

Inasmuch as the oil was too dark in color to admit of the determination of certain constants, a part of it was distilled under a pressure of 8 to 12 mm. under which conditions 60 percent passed over between 190° and 210°. Freshly distilled the oil was pale yellow in color and became semi-solid at ordinary temperatures and on keeping it turned slightly brown. When liquefied it was distinctly brown in color. The forty percent residue was rubber-like, resembling the residue from castor oil in the production of heptenal by destructive distillation.

Such constants as were determined are herewith tabulated together with those recorded for chaulmoogra oil:

Constants.	*Bixa orellana* crude oil.	*Bixa orellana* dist. oil.	Chaulmoogra oil.[3]
S. V.....	227.8	166	208.0
I. V.....	124.9	116.6	104.4
A. V.....	17.3	117.9	9.5
$\alpha_D 15°$.....	....	0	+51.3°
$d_{25°}$.....	0.928	0.914	0.952
n_D.....	1.4745 at 28°	....	....
M. p.....	Liquid	290°	22–23°

The great diminution in the saponification value and the corresponding increase in the acid value of the rectified oil show that decomposition of the glycerides must have taken place even under the greatly reduced pressure under which the distillation was conducted. Under these circumstances the practical absence of optical rotation of the rectified oil may signify nothing as compared with the high angle of rotation of chaulmoogra oil. More significant is the greater density of the latter as compared with that of the crude *Bixa orellana* oil.

In order to ascertain whether the Bixa oil contained chaulmoogric acid, the method adopted by Power and his co-workers[3] was tried out on the distilled oil, but the results proved negative. Inasmuch, however, as but 30 Gm. of material were available, this experiment is to be repeated on a larger scale as soon as convenient.

In order to separate any oleic acid that might be present from saturated fatty acids the method of Gusserow and Varrentrapp,[4] as described by Leukowitsch,[5] was employed. About 16 Gm. of mixed fatty acids were available. The lead salts from 7.3 Gm. separated by ether yielded 1.2 Gm. of solid and 4.7 Gm. of liquid fatty acids. In another experiment 8.7 Gm. gave 2.1 Gm. of solid and 5.1 Gm. of liquid fatty acids. That the separation was not absolutely quantitative was shown by the residue of unoxidizable solid fatty acids when the liquid acids were oxidized with permanganate.

The solid fatty acids were soluble in hot 75 percent alcohol from which they were recrystallized. The acid thus purified melted at 58° whereas palmitic acid

melts at 62.6° and stearic acid at 69.3°. The saponification value was found to be 205, whereas that of palmitic acid is 219. Inasmuch as a mixture of 80 percent palmitic acid and 20 percent stearic acid melts at 56.5° it is probable that the solid acids obtained consist principally of palmitic acid with some stearic acid.

The liquid acid or acids were oxidized with permanganate according to the directions given by Leukowitsch.[6] The oxidation product is apparently dihydroxy stearic acid which melted at 133° and which in all probability resulted from oleic acid present. Inasmuch as only 5 Gm. of liquid acid were available for this experiment, it is impossible to state whether small amounts of other acids are present or not.

A qualitative test for phytosterol indicated the presence of this substance in the non-saponifiable oil. However, the amount was too small to admit of any more definite statements.

SUGARS AND GLUCOSIDE.

The ropy material left upon evaporation of the alcoholic tincture was freed from fatty oil (as stated the petroleum ether extraction had been imperfect) by washing with ether. Some coloring matter and possibly other impurities were removed by washing with cold alcohol. The material thus purified was dissolved in water, the solution treated with lead acetate and the excess of lead removed from the filtrate with H_2S. The filtrate from the lead sulphide yielded a non-crystallizable residue. Dissolved in water this reduced Fehling's solution somewhat and gave a small amount of osazone melting at 200°. Previously hydrolyzed with 5 percent hydrogen chloride, the modified solution reduced Fehling's solution readily and gave an abundant osazone precipitate, thus indicating the presence of a glucoside as well as of a reducible sugar.

About 44 Gm. of material were then hydrolyzed. The distillate gave no test for hydrogen cyanide, thus indicating that the glucoside is non-cyanogenetic. The distillate had the odor of the aqueous distillate of the seeds, but whatever the substance was it defied identification in such small amounts.

While hydrolyzing the glucoside a brown, almost black powder was precipitated. After hydrolysis this was separated from the deep brown solution which could not be decolorized with animal charcoal. The precipitate was soluble in hot alcohol and upon evaporation of the solvent was obtained as dark brown scales.

Two methoxy determinations according to Zeisel[7] gave 1.49 and 1.93 percent, respectively. According to Zwick[8] and Etti[9] bixin has the formula $C_{28}H_{36}O_5$ and contains one methoxy group, namely, 6.9 percent. Van Hasselt, on the other hand, assigns to bixin the formula $C_{29}H_{36}O_5$ which brings the methoxy percentage slightly lower, *viz.*, 6.7 percent. However, the methoxy content of the precipitate is much lower. Such relation as may exist between bixin, the red coloring matter of the seed, and this product of hydrolysis of the glucoside could not be ascertained from the small amount of material available.

Owing to this coloring matter, it has been impossible thus far to obtain the sugar produced by the hydrolysis in a pure condition.

STEAM DISTILLATION OF THE SEEDS.

Twenty-six and a half pounds of crushed seed were subjected to steam distillation. The aqueous distillate of 15 gallons had a distinct odor, but no oil separated.

Hence it was cohobated, five liters being collected and, upon a second cohobation, 100 cc. This last distillate was opaque and a thin film of oil separated, too small, however, for examination. As already pointed out this distillate had an odor similar to that of the distillate obtained upon hydrolysis of the glucoside.

It is hoped that this preliminary investigation of the seeds of *Bixa orellana* may be repeated with much larger quantities of material.

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ELECTROMETRIC ASSAY METHODS FOR CRUDE DRUGS.*

BY WILLIAM J. MCGILL AND PAUL ELLIS FAULKNER.

One of the most fruitful developments of the electrolytic dissociation theory announced by Arrhenius in 1887 has been the quantitative conception of acidity and alkalinity. Previously, solutions were termed acid, alkaline or neutral, and no attempt was made to interpret different degrees of acidity or alkalinity, although Pasteur had early recognized the effects of these on the growth of microörganisms.

The term "hydrogen-ion concentration" has been used to designate degree of acidity or alkalinity. Since the product of the hydrogen and hydroxyl ions in any aqueous solution must always equal 1.10^{-14} a definite concentration of H-ion is always present, whether the solution be alkaline, acid or neutral, and it is therefore proper to speak of the H-ion concentration of a neutral or alkaline solution as well as of an acid solution. A further development in nomenclature has been the use of the term "p_H value" in place of the more cumbersome "H-ion concentration." The p_H value corresponds to log $1/(H^+)$ and the p_H values for different H-ion concentrations may be calculated from this equation.

The working out of methods for the determination of H-ion concentration has been largely done by Sörenson and his assistants at Copenhagen. Michaelis, in 1914, published his monograph, "Die Wasserstoffionenkonzentration," which summarized the entire subject up to that date. Since that time countless journal articles have appeared dealing with new methods of, and new applications for, the determination of H-ion.

So far, the development of this field has been due in great measure to the desire of workers in the biological sciences for a better knowledge of the effects of

* Scientific Section, A. Ph. A., Cleveland meeting, 1922.

H-ion concentrations upon various life processes. Although a few general articles have been published in pharmaceutical journals, and one short contribution on colorimetric determination of the H-ion concentration afforded by some alkaloidal salts, little experimental work seems to have been stimulated in the field of pharmacy along these lines. From the very nature of the substances with which the pharmaceutical worker has to deal, it would appear that the application of these ideas might prove of value in a number of problems. The deterioration of liquid preparations such as those of digitalis, cocaine, and a number of other easily hydrolyzed substances could be traced by the use of H-ion methods.

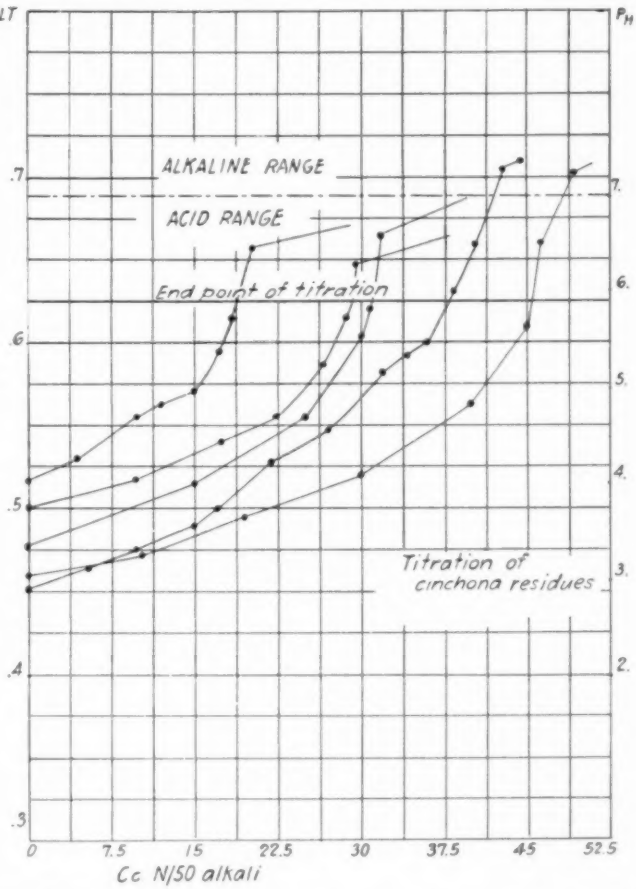
The concentration of H-ion may be determined either electrometrically or colorimetrically. Colorimetric standards are of course based on the hydrogen electrode, and electrometric methods are to be preferred because of their greater accuracy and freedom from interference by colored solutions.

In the assaying of alkaloidal drugs, the conditions seem to be nearly ideal for the use of electrometric titration methods. We are dealing with relatively large masses of inert material from which we endeavor to extract small quantities of active substance in as pure a condition as possible and most of the difficulties involve this effort to obtain a pure alkaloidal residue which may be either weighed or titrated. If some procedure can be utilized in which the usual tedious process of purification of the alkaloidal residue can be avoided, and at the same time equally accurate or even more accurate results can be obtained, a considerable saving of time could be made. Again in the determination of alkaloids by acidimetric titration, we are usually dealing with weak bases which we titrate either directly or indirectly with strong acids. In either case, the factors influencing the end-point are the same, and in practically all cases this comes in an acid solution, but the H-ion concentration of the solution at the correct point for each alkaloid varies widely so that for absolutely accurate results, the indicator must be selected with this fact in mind, and, further, the titration should be carried to a very definite shade of color. Electrometric methods afford the opportunity of avoiding both the long-drawn-out purification and the necessity of choosing the proper indicator and the correct shade of color for the end-point.

The apparatus we have employed is not of a complicated nature. The essentials are a good galvanometer, and potentiometer, besides a standard cell, regulating resistances, and a source of E. M. F., preferably an ordinary dry cell. These, with the hydrogen and calomel electrodes, electric stirrer, burettes, and a 400-cc beaker as a container for the solution, are all that is necessary. The hydrogen used is from a compressed tank supply, and for greater accuracy can be washed through alkaline permanganate, and alkaline pyrogallol solutions. The hydrogen electrodes used are of the Hildebrand type and normal calomel electrodes are employed. The galvanometer, potentiometer, standard cell, source of E. M. F. and regulating resistances may be obtained assembled in one unit in a Leeds & Northrup portable H-ion outfit, and we have found that this assembly is quite accurate enough for alkaloidal titrations. There are many modifications possible, already suggested in the literature or which will suggest themselves to anyone engaged in this work. For instance, it is possible to avoid the use of a potentiometer, the most expensive part of the apparatus, by constructing half-cells generating an E. M. F. equal to that produced in the solution at the finish of the titration, and

determining the null-point by means of an electrometer or galvanometer. Directions for the preparation of half-elements giving different voltages will be found in recent journal articles.

The greater accuracy obtainable by electrometric methods would not alone compensate for the additional equipment and knowledge of the subject involved. Such methods must further prove a saving of time and labor, and this can be accomplished only by shortening the purification process. Impurities to be excluded in an electrometric titration are only those substances which might conceivably exert a buffer action on the solution or cause a marked change in the p_H value of the solution from that which would ordinarily be assumed for the correct end-point. It is hardly possible to foretell the effect of various plant constituents which might be extracted as impurities, and the degree of purification necessary before a residue can be titrated successfully electrometrically has been worked out entirely experimentally.



THE ELECTROMETRIC ASSAY OF CINCHONA.

Because of the relatively large content of alkaloid, cinchona requires a larger number of extractions in the shaking-out process and consequently seemed to be an advantageous beginning for our experiments. Besides this, the titration of the residue always presents difficulties, even when a comparatively colorless residue is obtained, because no matter what indicator we employ the color change is not usually well defined, and the determination is therefore made gravimetrically.

As previously stated, we can titrate electrometrically to any desired H-ion concentration, and the first consideration in the method is to determine the proper end-point for our titration. There are several ways in which this can be done.

In a titration of a cinchona residue indirectly using standard solutions of NaOH and HCl, the solution at the exact end-point would contain the hydrochlorides of the cinchona bases, and sodium chloride, together with the dissociation products

of these substances. The small amount of sodium chloride formed in the neutralization would have little effect on the large volume of solution employed, so that we have only to consider the salts of the alkaloids. Obviously, the p_H value of such a solution should equal that of an aqueous solution of the pure alkaloidal hydrochlorides, of approximately the same dilution, and by determining the p_H value of this latter solution, we know the correct end-point for a cinchona residue titration.

Other methods depend upon plotting the voltage or p_H value against the alkali added, in the case of an indirect titration. If we carry out an electrotitration of a strong acid and a strong base, the curve resulting has a sharp break near the end-point, giving a very steep curve. But in the direct or indirect titration of alkaloids, the break while marked is not so steep, and in order to select the true end-point, it is customary to take the mid-point of the steeper part of the curve and use it as the end-point. In cases where the curve shows no pronounced break, plotting the increase of E. M. F. over the quantity of alkali necessary to produce that addition against the total E. M. F. gives a steep curve whose peak represents the correct end-point.

DETERMINATION OF THE p_H VALUE OF THE HYDROCHLORIDES.

A sample of quinine hydrochloride was carefully purified and various dilutions made up, using boiled, distilled water.

Dilution.	Voltage with N/calomel electrode.	p_H value.
$N/10$	0.628	5.96
$N/50$	0.629	5.98
$N/100$	0.629	5.98
$N/500$	0.631	6.01

It appears that the degree of dilution has little effect on the p_H value, which is to be expected.

A sample of cinchonine hydrochloride purified and dissolved in boiled distilled water gave:

Dilution.	Voltage with N/calomel electrode.	p_H value.
$N/50$	0.614	5.71
$N/500$	0.617	5.77

Since most of the alkaloid content of the samples of cinchona used consists of quinine, it was decided that the fixing of a voltage of 0.625 corresponding to a p_H value of 5.95 with the normal calomel electrode as the end-point would involve only a very slight error.

PREPARATION OF THE SAMPLE.

It was found that a slight modification of the U. S. P. method for the separation of the alkaloid from the crude drug gave a residue sufficiently pure for an electrometric determination.

A sample of five Gm. of the powdered bark is treated with 200 cc of chloroform and after 10–15 minutes' standing 5 cc of ammonia water added and the drug allowed to stand 8–10 hours, shaken 1 hour on a mechanical shaker, and 160 cc of the chloroform solution filtered through cotton into a 250-cc Soxhlet flask. The chloroform is evaporated on the water-bath, the residue which remains ranging all the way from a white crust of the alkaloid to a brown varnish-like residue, depending on the extractive in the drug sample.

TITRATION.

The residue is softened by the addition of 5 cc of neutral alcohol, 15 cc of $N/10$ hydrochloric acid added, and solution effected as far as possible. The liquid is then washed into a 400-cc beaker with several portions of boiled distilled water until the total volume is 300–350 cc.

The titration is carried out just as any electro-titration, either to the definite p_H value already determined, or by plotting the values obtained according to either of the methods outlined. With some experience, a titration can be made in ten minutes. Either $N/10$ or $N/50$ alkali can be used, the latter seeming not markedly more accurate.

COMPARISON OF RESULTS.

Assays were carried out by the above-mentioned methods and the results compared with those obtained in the U. S. P. assay.

Sample.	Electrometric method.	U. S. P. method.	Sample.	Electrometric method.	U. S. P. method.
G	5.33	5.71	F	5.21	..
	5.44	5.68		5.96	6.23
	5.45	5.84		5.89	6.37
	5.32	5.75		5.84	6.18
	5.41	..		..	..
	5.52	..		..	..
	5.50	..		..	..
	6.17	..		..	..

In order to obtain closer basis for comparison the U. S. P. method was carried out exactly, using double the quantities of maceration fluid and of crude drug, 160 cc of the maceration liquid being poured off and assayed by the U. S. P. method of extraction and subsequent weighing, and 160 cc being evaporated directly and assayed according to our method. The results follow:

Sample.	Electrometric method.	U. S. P. method.
A 1	4.14	4.42
2	4.06	4.59
3	4.21	4.47
B 1	6.27	6.44
2	6.09	6.51
3	6.38	6.59
C 1	5.16	5.07
2	5.27	5.42
3	5.09	5.51

In a number of cases the residue in the U. S. P. assay was also titrated, using brom-cresol purple as indicator, but in only a few samples was the end-point satisfactory so that the results could be termed definite.

Curves are given for a number of these titrations although most of the results were calculated on the basis of titrating to a voltage of 0.625 as the end-point.

It will be seen that methods such as the above save a large amount of time and our results, in this case, indicate that they are just as accurate or even more so than the colorimetric method. A number of other drugs have been experimented upon and these results will be discussed in later papers.

COLLEGE OF PHARMACY,
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THE TEACHING OF QUALITATIVE ANALYSIS IN COLLEGES OF PHARMACY.*

BY C. B. JORDAN.

There seem to be two quite different methods followed in teaching qualitative analysis and a brief discussion of these methods may be of value at the beginning of this paper.

First.—**The method followed in universities and colleges that require a year of college mathematics as a prerequisite and give a year's work in qualitative analysis.** In this method, the mathematical side of the subject is emphasized and a great deal of time is given to the theoretical discussion of chemistry. In fact, more attention is given to the theoretical phase of the subject than to the actual separation and identification of chemical compounds. I believe that this method is a little extreme even with the time devoted to mathematics as a prerequisite. It must be said, however, that the student is sure to get a better grasp of the fundamentals, and if fundamentals are mastered, it is to be assumed that they can be applied by a student of ordinary intelligence; therefore, a long drill in separation and identification of compounds is not necessary. Obviously this method cannot be used in a *two*-year course in pharmacy.

Second.—**The method in which little or no attention is paid to the theoretical phase of the subject, but much time is spent in learning, by rule of thumb, a scheme of separation and identification and much practice is given in applying this scheme.** The aim of this method seems to be "How many compounds can you analyze?" and not, "How well do you understand the fundamentals of the subject?" This is the old method that was followed before much work was done on the theoretical study of chemistry. Judging from the textbooks used, this method is still followed in many colleges of pharmacy. This is unfortunate because the student is not made aware of the recent advances in chemistry and is, therefore, handicapped in his work when he gets out of college. I believe that there is a middle ground between these two extremes and one that can be followed in any college of pharmacy. A discussion of this middle course may be of some value and this is my sole excuse for preparing this paper.

A person may learn to operate an automobile without knowing anything about the mechanical parts of the same. Such an operator may be successful as long as there is nothing to interfere with the perfect execution of the machine, but as soon as any interfering difficulties present themselves he is helpless. The same is true of the student who has learned qualitative analysis without understanding the basic principles of the subject. Everything goes well until some interfering substance appears and then he is at sea. In other words, a person may follow directions blindly, be it those for the operation of an automobile or those for the separation and identification of chemical compounds, and be fairly successful if no interfering difficulties are presented, but when difficulties do appear he cannot overcome them. We should not be content to present the subject of chemistry in this way.

The question naturally arises "How much time can we give to the teaching of the whys and wherefores of the subject?" I maintain that any course in qualitative analysis that requires less than 36 hours of lectures and 100 hours of labo-

* Section on Education and Legislation, A. Ph. A., Cleveland meeting, 1922.

ratory practice is of little value to the student. In fact, it would be much better if this number of laboratory and lecture hours were doubled, but I have given this as a minimum for the presentation of the bare fundamentals. I have selected this time as a minimum because I believe that in any *two*-year course in pharmacy this number of hours can be given to the teaching of qualitative analysis.

Granted that this number of hours can be given to the subject, how much theoretical chemistry can be presented? I will attempt to outline the subjects that can be covered in addition to the study of the metals and the scheme of separation and identification.

First.—Two or three lectures on the subject of colloid chemistry and its application, presenting only the bare fundamentals and in a way that they can be grasped by the ordinary student. There are many applications of colloid chemistry in qualitative analysis, but I will mention only a few of them. In the precipitation of the second group, the student is instructed to control the acid content and to have the solution hot when H_2S is added. The student should understand that this is to prevent arsenic from precipitating in the colloidal form and he should understand why this prevents it from doing so. Again in the third group he is likely to have difficulty in filtering aluminum and chromium and he should understand the tendency of these hydroxides to precipitate in the colloidal form and thus clog the pores of the filter. They are likely to adsorb some of the elements, causing failure to detect them and, therefore, this precipitate should be well washed. He should also know that organic matter should be destroyed at first, because it is often colloidal and may adsorb some elements. Many other applications of colloid chemistry will be met with, but sufficient has been given to illustrate the points raised.

Second.—Three or four lectures should be given to the subject of ionization constant and solubility—product constant. (It is assumed that the subject of ionization has been treated in general chemistry.) It is impossible to explain why copper is precipitated in the second group and zinc is not precipitated unless we understand the action of HCl in this precipitation. The student will learn that ZnS is insoluble in a neutral solution and soluble in an acid solution, and he should have an explanation of the action of the hydrogen-ion concentration on the ionization of H_2S. This cannot be given him without an understanding of the ionization constant and the effect of a common ion (hydrogen). The solubility product constants of PbS and ZnS also play an important part in this separation and this must be explained to him.

Again in the fourth group (Ba, Sr and Ca) he learns that Sr may be precipitated by a saturated solution of $CaSO_4$ and that, if a readily soluble sulphate such as $(NH_4)_2SO_4$ be added to a mixture of Sr and Ca and the precipitate filtered off, practically all of the Sr is removed and that enough Ca remains to give a precipitate with an oxalate. He should understand why this is true. Of course he may be told all of these things and be made to understand that he must follow directions given in the textbook, but such teaching is poor teaching and no active instructor will be content with it. Ionization and solubility-product constants play a very important rôle throughout the separation and identification of compounds and no student can fully understand these reactions unless he has a good grasp of the principles underlying these two factors.

Third.—Two lectures should be given on the subject of hydrolysis and the students should be given experiments to illustrate the principles involved. No other reaction causes the pharmacist as much trouble in prescription compounding and a thorough grasp of it is necessary. It is not sufficient that he learn verbatim that potassium acetate is alkaline in reaction and alum is acid in reaction. He should know why this is true so that he can understand similar difficulties. It is not sufficient to tell him that Al and Cr are precipitated as hydroxides, and all of the rest of the group as sulphides. He should understand hydrolysis so well that he can readily grasp the reason for this difference in the salts of the third group.

Fourth.—One or two lectures should be given on the subject of mass action and its application. A student who has not had this subject presented to him cannot understand the precipitation of BiOCl and its subsequent solution by means of increased hydrogen-ion concentration and its reprecipitation when the solution is added to a large volume of water. Neither can he understand the solubility of $Al(OH)_3$ in NaOH but not in NH_4OH. Many other applications of this principle are involved in qualitative analysis, but sufficient have been given for illustrative purpose.

Fifth.—Three or four lectures should be given to the subject of oxidation and reduction and its application. Here we should also discuss the electron theory if it has not already been discussed in general chemistry. For years we have balanced oxidation and reduction equations by rule of thumb. By means of the electron theory we can readily explain this method of balancing equations. In fact, all oxidation and reduction reactions can be more easily understood by means of this theory. Our method of separating Cl, Br and I depends upon their oxidation potentials or, as we say to-day, upon the difference in the ease with which these substances lose a negative electron. Thus you see the electron theory when used to explain oxidation and reduction clears up a difficulty that has been a stumbling block to students of chemistry for years. In a similar way this theory explains valence much better than any other theory.

In conclusion I wish to say, first, that it is possible to give a fairly good course in qualitative analysis to students who have not had college algebra and trigonometry; second, that the old method of teaching qualitative analysis by rule of thumb is entirely inadequate for present-day conditions and that any pharmacy college which continues to use it will find that it is to the detriment of the college and to the students thereof; third, that at least 36 lecture hours and 100 laboratory hours should be given to this subject; fourth, that with this amount of time and with the discussion of theoretical chemistry and its application to qualitative analysis a fairly good course can be given.

PURDUE UNIVERSITY,
LAFAYETTE, IND.

$25,000 ANNUAL PRIZE FOR CHEMISTS.

The American who makes the most valuable contribution to chemical science this year will receive a prize of $25,000, awarded by the Allied Chemical and Dye Corporation through the American Chemical Society. Dr. Edgar F. Smith, representing the latter, will be the chairman of the committee of award; the other members are to be named by the Allied Chemical and Dye Corporation of New York City, which, through William H. Nichols, offered the prize. The committee members are to have no connection with the corporation.

ALCOHOLOMETRY FOR THE PHARMACIST.

BY A. B. LYONS.

Under existing laws in America alcohol determinations have assumed a new importance to the pharmacist. The U. S. Pharmacopoeia prescribes a method of making such determinations by taking the specific gravity of a distillate from the preparation under examination. Details of the routine process need not be entered into here. Suffice it to say that in any case it is imperative to make note of the exact temperature at which the specific gravity is taken. Two alternative procedures are possible. Either the distillate, the volume of which bears a simple relationship to that of the sample distilled, is brought to a fixed standard temperature (commonly either 15° C. or the equivalent of 60° F.) or else the specific gravity is taken at room temperature, and a correction applied for difference from said standard temperature. The latter plan is that more commonly adopted, and is that prescribed in the U. S. P. IX. The alcoholometric table supplied in the Pharmacopoeia, however, gives the necessary data, whichever of the two alternative procedures is adopted.

THE U. S. P. IX ALCOHOL TABLES.

Examination of these tables shows that they give with a minimum of brain-wear results of reasonable exactness, the possible error rarely affecting the first decimal by more than one unit, *viz.*, 0.10 percent, providing the preliminary distillation has been conducted with care and intelligence. Features of these tables which have been criticised are the following:

1. The specific gravities given are "apparent," not "true," *i. e.*, they do not take account of the buoyant effect of atmospheric pressure. The pycnometer if marked 25 Gm. must hold at 15.56° C. exactly 25,000 Gm. of distilled water under average atmospheric conditions, uncorrected weight, whereas, if weighed in a vacuum, it would be heavier by the weight of the displaced air, *viz.*, about 0.0269 Gm.

Many of the specific gravity tables constructed for practical use adopt the same principle. Those given in scientific works, unless otherwise specified, are calculated to a vacuum basis, and it is clear that only corrected figures are admissible as a foundation for exact mathematical conclusions. When we take into consideration, however, the insignificant actual amount of the corrections in question and remember that these involve three distinct factors, *viz.*, temperature, humidity and barometric pressure, we are justified in concluding that for practical purposes, correction to true specific gravity in an alcohol table for every-day use is a needless refinement. Percentages deduced from apparent specific gravities are in fact quite as exact as those from the corrected figures we have to accept as true specific gravities.

2. It may be held inconsistent that the U. S. P. alcohol tables do provide a correction for variations in barometric pressure. A moment's consideration, however, will reveal justification for this provision in the fact that while variations in atmospheric pressure dependent on meteorological conditions are insignificant in amount, it is otherwise with variations due to altitude. At a station 3000 meters above sea level, the barometric pressure is reduced fully thirty percent. The difference in indicated specific gravity in such a case is not wholly negligible, where great accuracy of work is sought. However, such altitudes except for avia-

tors are quite exceptional. It is safe to say that up to an elevation of 1000 meters, no attention need be given to the correction under consideration.

3. The U. S. P. tables carry specific gravities to the fifth decimal place. It is maintained by some that four places would suffice. That depends. If the pycnometer used holds but 10 Gm. of distilled water, the difference in weight of its contents at 15.56° C. for a difference of 1 percent in alcoholic strength in a total of 20 percent is only about 10 mg. Weighings would have to be exact to 0.1 mg., with equally accurate temperature readings to give even approximate significance to the second decimal in the deduced percentage.

The most convenient size for the pycnometer is that holding 25 Gm. of distilled water. This would make possible the recognition theoretically of differences of 3 units in the second decimal, provided the measurements of sample and distillate have been made with exactitude, and the distillate consists of nothing but alcohol and water. Dismissing these elements of uncertainty let us consider the advantage to be received from extending the number of decimal places in the table of specific gravities from four to five. Suppose that the four place table gives us at about 16 percent (volume) a specific gravity of 0.98000, while the five place table gives 0.97996. This will mean a discrepancy between the tables amounting to about 0.04 percent. It is easy to draw the conclusion that while little dependence is to be placed on the second decimal in alcohol percentages deduced from specific gravities, there is a distinct advantage in a fifth decimal in the specific gravity table. Since the interpolation of fractional percentages is hardly more difficult in one case than the other, the five decimal table is certainly to be preferred.

4. The U. S. P. tables assume a standard temperature of 15.56° C., conforming in this respect to established usage in English-speaking countries. All the tables used in America by custom house officials and others charged with carrying out government regulations, federal or state, employ this standard, which moreover differs only very slightly from that of 15° C. adopted generally in foreign countries not English speaking. Where specific gravities are taken by a pycnometer of the old type, with perforated stopper, a temperature so low as this is inconvenient. The air temperature in an average weighing room in America is almost always so high that moisture condenses on the pycnometer. Air currents also interfere with accuracy in making weighings under these conditions. To be sure, the Westphal balance may be used, taking care that the plummet of the balance is made of glass having the same coefficient of expansion by heat as that from which the pycnometer is made, but such a balance is not part of the equipment of the ordinary drug store.

Either, therefore, the pycnometer is to be filled with the distillate (previously brought accurately to correct volume) which has been allowed to come to the air temperature of the weighing room, and the percentage found corrected for temperature by the supplementary table, pp. 636 and 637, or else a pycnometer of the Squibb type must be used—to be "filled" at standard temperature and then brought to air temperature for weighing. The latter plan is to be preferred, yet the former has the advantage of rapidity of execution.

5. Non-essential features of the U. S. P. tables are the data with regard to percentages by weight and relation of weight to volume percentage and *vice versa*.

Such data are occasionally wanted, and so may well be included, although there is possibility that errors may result from carelessness in taking out figures from the wrong column.

THE NEW TABLE OF THE A. O. A. C.

There are cogent reasons for the adoption of a uniform temperature standard of 20° C. for all statements of specific gravity where the physical properties of the substance permit. The A. O. A. C. has recently published an elaborate alcoholometric table calculated on this basis. The figures of this five decimal table are said to have been computed by the Bureau of Standards, and I find them in close accord with those of the basic tables published by that Bureau. In criticism of the new table, the following points may be noticed.

1. The table multiplies figures needlessly, covering as it does nearly 14 twelve-column pages. If the observed specific gravity (density) is 0.97848, we find by reference to the table that the percent by volume of alcohol lies between 15.40 and 15.45. Interpolation gives us 15.40 plus $(0.05 \times 4 \div 6)$ which equals 15.43. Note that the 6 and 4 above result from subtraction, respectively, of 97846 and 97848 from 97852. Now suppose that the table gave specific gravities only for integral percentages, giving also, however, the factor for calculating fractional percentages: We have only to make one subtraction, *viz.*, $97897 - 97848 = 49$ (units of fifth decimal). The table would supply the factor 0.901. For the fractional percentage, multiply 49 by 0.901 and add the product $(49 \times 0.901 = .44\ (15))$ to 15% giving the percentage as 15.44, a result practically identical with that deduced from the table. The interpolation is quite as easy in one case as in the other.

2. The table gives densities instead of specific gravities. This does not affect the use of the table, of course, but it is easier to verify the accuracy of a pycnometer if it is to contain at standard temperature an exact 25, 50 or 100 Gm. of distilled water, than if the quantity, *e. g.*, for a 25-Gm. pycnometer is to be $25{,}000 \times 0.99823 = 24.9558$ Gm.

3. The "specific gravities" (densities) given in the table are understood to be *in vacuo*, consequently all pycnometer weighings are to be reduced to a vacuum basis. This holds of course in the weighings to verify the calibration of a pycnometer. In the example given at the close of the foregoing paragraph the weight 24.9558 is to be calculated to apparent weight. The correction to vacuum weighing in this case would be, for a barometric pressure of 750 mm., humidity 50%, 25 mg. multiplied by $1.039 = 25.5$ mg., subtractive, so that the apparent weight of the water filling the pycnometer at 20° C. should be $24.9558 - 0.0255 = 24.9303$ Gm.

4. The one important criticism of the A. O. A. C. table, as I have already pointed out,* is that *its volume percentages do not agree with those of established usage*. The table is self-consistent indeed, in that the standard temperature of 20° C. is taken as that at which the weight volume relation is calculated. But we must bear in mind that *this ratio varies with the temperature, so that it is imperative that statements of volume percentages of alcohol shall assume an invariable standard temperature for this relation*, whatever the temperature be at which weighings are made. Otherwise there must result endless confusion in business transactions.

* Jour. A. Ph. A., 1921, p. 12.

Such standard has been fixed the civilized world over at 15° C. or the practically identical 60° F. (15.56° C.). The U. S. Bureau of Standards makes authoritative for the United States the latter of these alternatives, publishing full tables in which fractional decimals are carried to three places.

The general public cannot be expected to know that the volume percent of alcohol in a mixture will vary if the measurements are made at different temperatures, yet this is an obvious consequence of the difference in coefficient of expansion by heat of water and alcohol. Usage crystallized into legal enactment has given a fixed meaning to volume percentages of alcoholic beverages or mixtures. Only by international agreement should any change in that meaning be made in any alcohol table by which volume percentages are to be determined.

As it is, the A. O. A. C. is a house divided against itself, since, side by side with the new table, there is published by them an equally elaborate table (for determination of alcohol percentages by the refractometer) in which *we find throughout the old familiar weight-volume relationships*, although the observations are made at temperatures ranging from 17.50° C. to 25° C.

Why not then reckon alcohol percentages by weight exclusively? For two reasons: first, because in America quantities of any liquid are thought of and expressed in terms of volume, not of weight. Liquid medicines, for example, are prescribed and administered only in measured doses. Twenty percent (volume) means that a "teaspoonful" dose contains twelve minims of absolute alcohol, whether the medicine be a heavy syrup or merely a hydroalcoholic fluid of low specific gravity. If, on the other hand, the medicine contains 20 percent of alcohol by weight the actual quantity will depend on the specific gravity of the liquid. In the second place the weight percent of a distillate given by an alcohol table is only exceptionally the proportion of alcohol contained in the liquid yielding that distillate. The specific gravity (true) of that liquid must be ascertained, and the percent then calculated by the rule of three.

To be sure it would be possible to give to the expression "percent of alcohol by weight" conventionally a modified sense based not on the weight of the original sample but on a distillate therefrom having at standard temperature an equal volume. Merely to suggest such a possibility, however, is to make clear its impracticability.

CONCLUSIONS.

From the foregoing discussion the following conclusions may be drawn:

1. An alcohol table for every-day use by the practical pharmacist may well be an abbreviated form of the A. O. A. C. table, agreeing with that in assuming a standard temperature of 20° C. (perhaps preferably 25° C.) for taking specific gravities, but differing in the following particulars: (A) The standard temperature for weight-volume relations should be that in established use, *i. e.*, in America 15.56° C., until international agreement shall bring about adoption of a different standard. (B) The specific gravities should be on a basis of 20°/20° (or 25°/25°) not 20°/4°, preference to be given to 20° as the standard adopted generally by the Bureau of Standards. (C) Because of the unfamiliarity of many pharmacists with the reduction of apparent to true specific gravities, it seems best to give the former rather than the latter in any specific gravity table for determination of per-

centages by use of the pycnometer or Westphal balance. (D) The table should give specific gravities only for integral percentages, a column of factors being supplied for the easy calculation of fractional percentages. (E) The column for weight percentages corresponding with volume percentages may well be retained, and a corresponding column of factors for calculation of intermediate percentages could be added for completeness. A portion of such a table is given below, sufficient to illustrate the plan. The figures given may require slight modification, but they are substantially correct.

ALCOHOLOMETRIC TABLE I (IN PART).
Sp. Gr. app. 20°/20° C.
To be used at a Fixed Standard Temperature, *viz.*, 20° C.
Volume-Weight Ratio Taken at 15.56° C. (60° F.).

Percent alcohol vol.	Sp. gr. (app.) 20°/20°.	Factor for fractional percent.	Percent alcohol wt.	Factor for fractional percent.
0	1.00000	0.671	0.000	0.533
1	0.99851	0.676	0.795	0.539
2	0.99703	0.694	1.593	0.555
3	0.99559	0.704	2.392	0.565
4	0.99417	0.725	3.194	0.583
5	0.99279	0.746	3.998	0.600
6	0.99145	0.769	4.804	0.622
7	0.99015	0.794	5.612	0.643
8	0.98889	0.806	6.422	0.655
9	0.98765	0.826	7.234	0.671
10	0.98644	0.833	8.047	0.679

Example: A distillate is found to have a sp. gr. (apparent) at 20°/20° C. of 0.98700. To find volume percent take out from Column II the figure next above 0.98700, *viz.*, 0.98765. The difference (65) is to be multiplied by 0.826 from Column III (opposite 0.98765). The product, $65 \times 0.826 = .537$, is the required fractional percent (vol.) to be added to 9 (Column I).

To find percent by weight, use the same difference, but multiply by 0.671 (Column V). The product, $65 \times 0.671 = .436$, is the fractional percent by weight to be added to 7.234 (Column IV), giving the result 7.234 plus 0.436 = 7.670.

2. For many it will seem the easiest way to adjust the volume of distillate at the correct temperature and then to allow the fluid to come to the temperature of the weighing room. Make the necessary weighing at that temperature and then apply a temperature correction. For such the present U. S. P. table is to be recommended with some modifications. It will be seen that the tables on pages 633 to 635, inc., are really two distinct tables, that on the left half of the pages alone being that to be consulted in determining volume percentages. As already explained, the fourth column need not be taken into account unless the barometric pressure is lower than that normal at an altitude of 1000 meters.

It might be well to complete the table for temperature corrections by giving the figures for each integral percentage, only about one-half of these being given in the U. S. P. Table. With the table completed in this respect, interpolation for fractional degrees of temperature becomes a simple matter.

Example: Required the correction for 23.6° C. in a case where the uncorrected percent is 58. The correction for 23° is 2.66; for 24° it is 3.01. The difference is 0.35. For the fractional 0.6° multiply 0.35×0.6; the product 0.21 is simply to be added to 2.66 giving 2.87 as the required correction. In like manner an interpolation may be made for fractional percentages, but as a rule this is negligible.

ALCOHOLOMETRIC TABLE II (IN PART).

Giving Percent by Volume of Absolute Alcohol Corresponding with Different Apparent Specific Gravities at Different Temperatures.

Temperature.	24.99	24.98	24.97	24.96	24.95	24.94	24.93	24.92	24.91	24.90	24.89	24.88	24.87	24.86
15° C.	0.33	0.60	0.86	1.13	1.40	1.68	1.95	2.22	2.50	2.79	3.07	3.35	3.63	3.91
	.10	.10	.10	.10	.10	.10	.10	.10	.10	.11	.11	.11	.11	.11
15.56	0.27	0.54	0.80	1.07	1.34	1.62	1.89	2.16	2.44	2.72	3.00	3.28	3.56	3.84
16	0.23	0.50	0.76	1.03	1.30	1.58	1.85	2.12	2.40	2.68	2.95	3.23	3.51	3.79
17	0.13.27	0.40.26	0.66.27	0.93.27	1.20.28	1.48.27	1.75.27	2.02.27	2.29.28	2.57.27	2.84.28	3.12.28	3.40.28	3.68.28.
18	0.02	0.29	0.55	0.82	1.09	1.57	1.64	2.91	2.18	2.46	2.73	3.01	3.29	3.57
19	....	0.18	0.44	0.71	0.98	1.26	1.53	1.80	2.07	2.35	2.62	2.89	3.17	3.45
..	....	.12	.12	.12	.12	.12	.12	.12	.12	.12	.12	.12	.12	.13
20	....	....	0.32	0.59	0.86	1.14	1.41	0.68	1.95	2.23	2.50	2.77	3.05	3.32
21	....	....	0.20	0.47	0.74	1.01	1.28	1.55	1.82	2.10	2.37	2.64	2.92	3.19
22	....	....	0.07.27	0.34.27	0.61.27	0.88.26	1.14.27	1.41.27	1.68.28	1.96.27	2.23.27	2.50.27	2.78.27	3.05.27
23	....	....	....	0.21	0.47	0.74	1.00	1.27	1.54	1.82	2.09	2.36	2.63	2.90
24	....	....	....	0.07	0.33	0.60	0.86	1.12	1.39	1.67	1.94	2.21	2.47	2.75
..	....	....	....	....	.14	.14	.14	.15	.15	.15	.15	.15	.15	.15
25	....	....	....	....	0.18	0.45	0.71	0.96	1.23	1.51	1.78	2.05	2.32	2.59
26	....	....	....	....	....	0.28	0.55	0.80	1.07	1.35	1.62	1.89	2.15	2.42
27	....	....	....	....	....	0.11.26	0.38.26	0.63.27	0.90.27	1.18.27	1.45.27	1.72.26	1.98.26	2.24.27
28	....	....	....	....		....	0.21	0.46	0.73	1.00	1.27	1.54	1.80	2.07
29	....	....	....	....	....		0.03	0.28	0.55	0.82	1.09	1.36	1.62	1.89
..	....	....	....	....	....	....	.17	.18	.18	.18	.18	.18	.18	.18
30	....	....	....	....	....	....	....	0.10	0.38	0.64	0.91	1.07	1.43	1.70
31	....	....	....	....	....	....	....	....	0.20	0.46	0.72	0.98	1.24	1.51
32	....	....	....	....	....	....	....	....	0.01.26	0.27.26	0.53.27	0.79.26	1.05.26	1.31.26
33	....	....	....	....	....	....	....	....	....	0.07	0.33	0.59	0.85	1.11
34	....	....	....	....	....	....	....	....	....	....	0.12	0.38	0.64	0.90
..	....	....	....	....	....	....	....	....	....	.20	.21	.21	.21	.21

Upper horizontal line of figures is the apparent weight of volume equal to that of 25 Gm. of distilled water weighed in air at 15.56° C. (equals content of pycnometer which holds at 15.56° C. 25 Gm. of distilled water, apparent weight in air). Interpolation is facilitated by the figures indicating the average differences in percentage, respectively (vertically), corresponding with 1° C. in temperature, and (horizontally) for differences of 10 mg. in weight of the distillate.

The weight-volume relation is fixed at the standard temperature of 15.56° C. (60° F.) in accordance with customary usage.

In such a table a standard temperature for taking specific gravities may well be 20° C. The temperature corrections in such case would be additive below 20° C., subtractive above that temperature. It would be necessary to calculate independently these corrections, a somewhat laborious task, which I have once performed merely for my own satisfaction.

3. A convenient table for rapid determination of alcohol percentages in distillates assumes the use of a 25-Gm. pycnometer with perforated stopper, holding exactly 25 Gm., apparent weight in air, of distilled water at 15.56° C. The pycnometer is furnished of course with a counterpoise. From 50 cc of a preparation containing alcohol a distillate having the same volume is obtained with the usual precautions. Measurements of the sample and of the distillate must be made at 15.56° C. The distillate having been brought to the air temperature of the weighing room, the pycnometer is filled and rapidly but accurately weighed, with counterpoise in place. A portion of the proposed table, which should be self-explanatory, is given.

A table of this type need not extend further than to include percentages up to 25 at 34° C. The volume of the distillate is to be increased sufficiently to bring its strength within this limit. For a sample containing 20 to 40%, distil two volumes from one; between 40 and 70%, three volumes; above 70%, four volumes to one. The percentage taken out from the table is of course to be multiplied by 2, 3 or 4 as the case may be.

LABORATORY OF NELSON, BAKER & CO.,
OCT. 8, 1922.

TANNIN IN WHISKY.

BY R. D. SCOTT.*

In connection with prohibition enforcement it is often of material importance as to whether a seizure of whisky was in defendant's possession, as frequently claimed, prior to 1919. Since counterfeit bottle labels and revenue stamps are not uncommon, an analysis of the liquor is usually necessary before a decision as to its age and composition may be made.

The customary determinations of esters, acidity, extract, etc., will generally yield sufficient information for this purpose, but in addition experience has shown that the amount of tannin present is a valuable index of the proportion of genuine whisky in the sample.

The difficulty, at present, of obtaining an extensive series of authentic whisky samples being obvious, the number of samples in which tannin was determined was not sufficient to permit of making any definite statement of the normal amount present in whisky of various ages and types. However, the 11 authentic samples of different brands of American Bottled in Bond Whisky examined were found to contain from 30.0 to 42.5 grams per 100 liters of tannin.

* State Department of Health, Columbus, Ohio.

It was found that a number of seized samples of stretched whisky, which is ordinarily compounded from equal parts of alcohol, water and genuine whisky, contained in the neighborhood of 10.0 grams per 100 liters and that this was also approximately the tannin content of the few samples of Canadian whisky examined.

The tannin determination was carried out essentially by the Folin and Denis method[1] for the colorimetric estimation of phenols in urine.

One cc of whisky is placed in a 100-cc Nessler jar and made up to the mark with distilled water. One cc of Folin's phenol reagent[2] is then added, followed by 5 cc of saturated solution of Na_2Co_3. After 10 minutes the blue color developed is compared with standards made up at the same time containing 0.0, 0.25, 0.5, 1.0, 2.0 and 5 cc of standard tannin solution, freshly prepared by dissolving 0.1 gram of pure tannic acid in 1 liter of distilled water.

While it is believed that the test described is, with American whiskys, largely if not entirely an estimation of tannin, it would probably include phenols with Scotch whiskys.

THE ESTIMATION OF GADUOL IN TASTELESS EXTRACTS OF COD LIVER OIL.*

BY JOHN C. KRANTZ, JR.

The ever-increasing demand for a medicine possessing the medicinal virtues of cod liver oil, without the disagreeable and nauseating taste and odor of the latter, has made "Tasteless Extracts of Cod Liver Oil" one of the most generally used tonics. As the validity of manufacture of this type of preparation, since the passage of the National Prohibition Act, depends largely upon its gaduol content, the estimation of this active constituent becomes a problem of general interest.

Gaduol, unlike most complex organic bodies, shows a marked variation in its solubilities in alcohol and ether. To illustrate, the general solubility of alkaloids may be cited. Most alkaloids that are soluble in alcohol are found to be just as soluble in ether or chloroform and in a great many cases to be more soluble. However, gaduol, although very soluble in alcohol, is practically insoluble in ether, chloroform, benzene, toluene, etc. The insolubility of the product in these immiscible solvents makes its extraction from a pharmaceutical preparation difficult.

THEORY OF METHOD.

The method used in this laboratory depends upon the immiscibility of alcohol with concentrated saline solutions and the use of alcohol as an immiscible solvent under these conditions. Thus, a sample can be saturated with potassium carbonate and the gaduol extracted with alcohol, in which it readily dissolves.

EXPERIMENTAL.

Transfer 20 cc of the extract to a separator, add 18 Gm. of potassium carbonate and shake until dissolved. Extract the gaduol with two portions (20 cc each) of alcohol. Evaporate the combined alcoholic extractions to dryness on a water-bath, dry the residue to a constant weight at 100° C. and weigh.

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[1] *J. Biol. Chem.*, 12, 239, 1912.

[2] To 750 cc of distilled water add 100 grams of sodium tungstate, 20 grams of phosphomolybdic acid (or 18 grams of 85 percent molybdenum trioxide) and 50 cc of 85 percent phosphoric acid. Boil for 2 hours under a reflux condenser, cool and dilute to 1 liter. *Jour. Ind. Eng. Chem.*, 13, 422, 1921.

* Read before Baltimore Branch, A. Ph. A., October meeting, 1922.

A 2% gaduol solution containing 15% alcohol was prepared and the following results show the percentages found by the above method:

Determination I—2.030% Determination III—2.14%
Determination II—2.13% Determination IV—2.10%

A popular brand of extract of cod liver oil of unknown gaduol strength was examined and the following results obtained:

Determination I—1.10% Determination II—1.01%

CONCLUSION.

The method described herein is admirably adapted for the rapid gaduol evaluation in this important class of medicines.

SCHOOL OF PHARMACY,
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WHY NOT A STANDARD CODE OF REGULATIONS FOR THE SALE OF POISONS?*

BY J. H. BEAL.

The legislator who attempts to draft a poison act usually goes to the dictionary to look for a definition of a poison, where he finds something more or less like the following:

"Any substance that when taken into the system acts in a noxious manner by means not mechanical, tending to cause death or serious injury to the health."—*Standard Dictionary.*

This definition and its variations found in other lexicons reflect the popular notion that poisons and non-poisons fall within entirely separate categories—in other words, that there is a sharp line of distinction between substances that are capable of causing injury or death and those that are not capable of doing so.

Unfortunately, there is no such line of distinction. Practically all of the substances we are acquainted with reach across the line in both directions. There is no substance so deadly that it may not be taken into the system with perfect safety if the dose be made small enough, and, conversely, there is practically no substance so innocuous that it is not capable of causing death or injury to health if the quantity ingested exceeds certain limits.

Many common and wholesome articles of food are either noxious in overdoses, or contain certain constituents that are noxious in overdoses. Even that commonest of common articles, common salt, in excessive doses will produce death as certainly and as painfully as will an overdose of arsenic. The dose is larger—that is all. Medical literature records not a few cases of death resulting from overdoses of common salt taken accidentally, and this article is said to be frequently employed in China as an agent for the commission of suicide.

In the form of vinegar we habitually use quantities of acetic acid that in the concentrated form would be gravely injurious if not deadly, while many other common condimental substances, as mustard, capsicum, cloves, etc., contain or are

* Presented before Section on Education and Legislation, A. Ph. A., Cleveland meeting, 1922. See also p. 953, November JOURNAL A. PH. A., and September JOURNAL, p. 718.

capable of yielding substances possessing high degrees of toxicity. Many of our most highly prized fruits yield prussic acid, one of the most dangerous of poisons, and even the common pie plant, or rhubarb, contains the very poisonous oxalic acid in such proportion that it has been known to cause death when immoderately eaten. According to the dosage employed, a given substance may be a necessary food constituent, a useful medicine or a deadly poison.

The human body is normally full of poisons, that is, of constituents which in proper proportion are essential to normal physiological life, but which will act destructively if these proportions be greatly exceeded. As a familiar example may be cited the small amount of free hydrochloric acid in the gastric juice that is necessary to normal digestion. If this amount be exceeded, disorders of digestion are occasioned, and if the concentrated acid be taken in moderately large doses it becomes toxic and deadly. Such examples might be multiplied almost indefinitely.

It was such considerations that prompted a noted toxicologist when asked to define a poison to say that "a poison is too much."

The mode of ingestion is also important. Snake venom taken into a healthy stomach would probably be innocuous, while common white of egg injected directly into the circulation would almost certainly cause death.

From the above examples and from many others that might be cited, it is evident that such a thing as a satisfactory statutory definition of a poison is impossible. Many states have tried it, but none has succeeded.

Some statutes attempt to get around the difficulty by reciting that any substance is to be deemed a poison if the maximum dose as cited in standard works on materia medica or toxicology is within a specified number of grains. Such definitions by reference are faulty for several reasons. Many undoubtedly authoritative works on materia medica do not state maximum doses, and again other textbooks of equal reputation and written by authors of equal professional standing may differ among themselves as much as a thousand percent in their statement to maximum doses.

A number of years ago one state adopted a statute which declared a poison of be any substance defined as such by either the United States or Homeopathic Pharmacopoeias. But since neither of these volumes defined or gave a list of poisons it followed that, legally speaking, there could be no such thing as a poison in that state.

Other statutes do not attempt to define a poison but set out in one or more schedules a list of the substances that are to be deemed poisons, but since it would make the statute of unwieldy length to specifically name all possible poisons, such statutes usually add the supplementary clause "and other noxious and deadly substances."

Since we cannot satisfactorily define a poison, and since it is impracticable to set forth by name in a statute all possible poisons in existence, the only way open, it seems, would be to have a standard list or table of poisons that could be adopted by the law, the same as it has adopted the United States Pharmacopoeia and Nattional Formulary as the standards.

It would have been impracticable for the Food and Drugs Act to have set forth separate standards for all of the articles included in the U. S. P. and N. F., but by adopting the books themselves as standards the same object was accomplished in a few words.

In like manner if we had a national poison table, that, like the U. S. P., represented the combined medical and pharmaceutical wisdom of the country, a statute would need merely to describe and adopt the table as a part of the law, together with the necessary penalties for violation, etc., and the poison statute would be complete.

What a Standard Poison Table Should Include.—The standard poison table should include, first, all of the regulations, cautions, exceptions, and other particulars that would ordinarily be embraced in a poison statute and, second, such other regulations, cautions, exceptions and other particulars appropriate to the handling and dispensing of poisons that, because of their complexity, the amount of detail involved, or for other reasons, cannot conveniently be set forth in statutory phraseology. As illustrative of an appropriate table of contents the following is cited:

1. An introduction or preface explaining the impossibility of satisfactorily defining a poison, and the reasons for the preparation of the table.

2. A list of substances, distributed in schedules according to toxicity, that should ordinarily bear a poison label when sold or dispensed in unmixed or undiluted form.

3. A list of substances upon which a cautionary label against misuse should be used instead of the regular poison label.

4. A description of a sufficient poison label, or of a sufficient cautionary label to be used under certain conditions.

5. A list of exceptions when the poison or cautionary label need not be used, *e. g.*, as upon preparations compounded in accordance with a physician's prescription, upon preparations of a given degree of dilution, etc.

6. A list of antidotes and of antidotal measures suitable for printing upon poison labels.

Other important subjects for inclusion would no doubt suggest themselves as the work of compiling such table progressed.

Suggested Method of Compiling a Standard Table of Poisons.—As suggestive of the manner of compiling such a table the following is offered:

1. The preliminary work of assembling materials and formulating the table should be done by a special committee of the American Pharmaceutical Association, such committee to be selected so as to contain representatives of the several branches of the drug trade—retailers, wholesalers, and those who manufacture products for distribution by the retail and wholesale trade.

2. The report of this committee, after being passed upon by the A. Ph. A., should then be referred to each of the national associations representing the different branches of the drug trade and to the American Medical Association, with the request that these associations severally consider the table submitted and report the same, with their suggested improvements, back to the A. Ph. A.

3. The amendments reported back by the foregoing associations should then be taken up by the A. Ph. A. committee and used in the preparation of a completed report, to be subsequently printed and circulated in such a manner as may seem advisable.

No doubt periodical revisions would be required, either for the correction of errors in the table, or to keep it abreast with scientific progress.

JOHNNY APPLESEED.*

BY J. W. STURMER.

It is hard to realize that a little more than a century ago the region which now constitutes northern Ohio and northern Indiana was a vast forest, the cherished hunting grounds of the red men. Here for unnumbered generations they kindled their camp fires, erected their wigwams, and lived their lives in peace and in tribal warfare, in accordance with their traditions. Whence they came, or when they came, no one knows; history records only the dramatic and tragic episodes of their passing.

The pale face from the distant lands of the rising sun, who came to dispute the red man's exclusive right to his ancestral hunting grounds, was no welcome intruder. But it was with an intense hatred that the Indian contemplated the influx of the pioneer who came to build a permanent home. For with his axe he felled the trees and made great clearings in the somber forest. His plow uprooted the familiar flora and prepared the ground for strange grain. His gun exterminated the game. In due course he built roads, linking the clearings, bridged the streams, drained the swamps, founded villages teeming with strange activities, and indeed changed the very face of nature as effectively as some great physical cataclysm, coming as an act of wrath of the Great Spirit.

But the influx of these dauntless and marvelously efficient pale faces, once begun, never slackened. They brought their kith and kin. Their block houses and trading posts soon occupied the strategic positions along the water courses, and the Indian saw himself dispossessed of his hunting grounds. He was forced to retreat deeper and yet deeper into the forest, which he did, however, with the determination to exact of the intruder the highest possible price in human blood. Hence it is that the early history of Ohio and Indiana is a record of ambuscades and massacre, and of the heroic defense of their newly established homes, by the early settlers.

Both history and fiction have faithfully portrayed the typical pioneer, as handy with the gun as with his tools of agriculture, a sturdy figure, the advance guard in the great military invasion which conquered the Middle West for the white man.

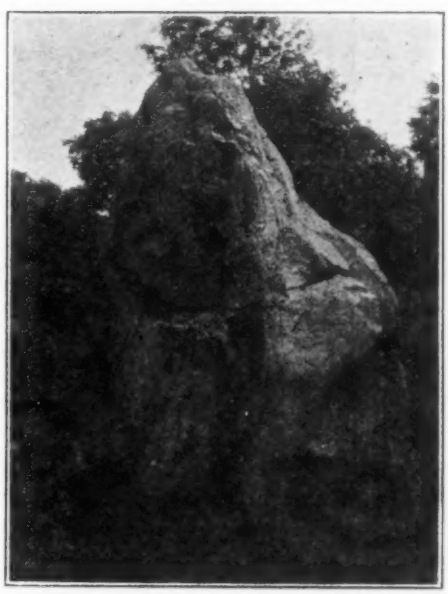
Yet, when about a hundred years ago, the Indians had planned a night attack upon a settlement a little more than sixty-five miles southwest of where we now sit (Cleveland), the warning was brought by a strange white man who had traversed unarmed the great forest which beyond gunshot range of the clearings was a "no man's land," full of lurking dangers; and it was he who, travelling at night, brought reënforcements from a block house thirty miles distant. A tall gaunt man, clad in clothing much the worse for wear, the coat having been improvised from a coffee sack, and the mush pot of his meager camping outfit doing service as a helmet, he must have been an odd figure, even in those unconventional days. But he was a welcome guest at every pioneer's fireside, for he was none other than Johnny Appleseed—Swedenborgian missionary, philosopher, poet, nature lover, a kind of nomadic Thoreau, but with a deep human sympathy, gentle and kindly, whose philanthropy extended to the stranger, and whose altruism contemplated

* Section on Historical Pharmacy, A. Ph. A., Cleveland meeting, 1922.

the generations who were to inhabit this newly settled region. He was the pioneer nursery man of the Middle West, and the distributor of seeds of medicinal plants brought from the older settlements. As he put it—

"I love to plant a little seed
Whose fruit I'll never see;
Some hungry stranger it may feed,
When it's become a tree."

His real name was John Chapman, and his birthplace, Springfield, Massachusetts. In 1806 he arrived in Ohio, and planted his first Ohio nursery near the present town of Steubenville. From this point he moved westward and northward, until his plantings formed a chain extending into Northern Indiana. His seedlings and his seeds of herbs were distributed without charge, though he would accept a night's lodgings, a meal, or some simple article for his camping outfit. For forty-six years he was a rover, along his chain of nurseries, and at the ripe age of seventy-six he died of pneumonia, at a farmer's home, a few miles north of Fort Wayne, Indiana. Nearby, in what is known as Archer's Cemetery, rest his remains. And in Sweeney Park, in the aforementioned city, the Indiana Horticultural Society has erected a memorial to his memory, a granite boulder, worn smooth by its glacial journey from some distant parent rock. Old apple trees grown from the stock provided by Johnny Appleseed are still bearing fruit, and several may be found in Fort Wayne, near the conflux of the St. Mary and St. Joseph Rivers, which form the Maumee. But no one can estimate how many gardens in Ohio and Indiana contain medicinal plants traceable to the seeds which he distributed. He was no great botanist, and his knowledge of the medicinal worth of plants was rather erratic. And some of the unwelcome weeds, as, for example, the ill-smelling dog fennel, *anthemis cotula*, now so common in many rural school yards, and on farm land allowed to lie fallow, were disseminated by Johnny Appleseed, with the mistaken idea that he was providing valuable medicine for his fellow man. But as to that, he is far from standing alone when it comes to being in error about the true therapeutic value of plants, purported to be medicinal.



Johnny Appleseed Memorial.

John Chapman—Johnny Appleseed—one of the most picturesque figures of the pioneer days of this section, lived a life of peace in an era of Indian wars. When his contemporaries established homes and accumulated property, he, though a poor man, spent his allotted years in practical philanthropic enterprise. He led no military expeditions, framed no laws, laid out no towns. Yet who would say that this gentle, eccentric distributor of seeds—and of young apple trees—by his

example of outstanding unselfishness, did not leave a profound impress upon the pioneers of this section? Preceding the country doctor, and the village apothecary, he was literally the pioneer in supplying medicinal herbs to the settlers of this region. The history of Ohio and Indiana pharmacy would therefore be incomplete if it did not include some reference to this uncouth but kindly wanderer in the wilderness—Johnny Appleseed.

Wide World Photos, N. Y. Times

O. HENRY IS NOT FORGOTTEN.

Archibald Henderson, accompanied by Judge Thomas A. Jones, Mrs. Charles M. Platt, Mrs. William Sidney Porter, Dr. Pinckney Herbert and Mrs. Fagg Malloy, placing a wreath on O. Henry's grave at Riverside Cemetery, Asheville, N. C., on the 60th birthday anniversary of America's great short story writer.

William Sidney Porter was employed for five years in the drug store of his uncle, Clark Porter, in Greenville, N. C. It is said he was attracted to the name "O. Henry" by the reference in the U. S. Dispensatory, under "Hydrocyanic Acid." However, he did not adopt the pen-name until sometime in 1898, but from then on he kept it till the end. The family name is "Sidney" not "Sydney," but the author used both—in most of his writings the latter. He was born in Greensboro, September 11, 1862, and died in New York City, June 5, 1910. Dates of his birth are differently given, but that of September 11, 1862, is registered in the family Bible.

Dr. Archibald Henderson, shown in the picture, was president of the Literary and Historical Association of North Carolina when a bronze tablet was unveiled in memory of the author's mother and her illustrious son, in the Library Building at Raleigh, N. C.

It was in Dr. Pinckney Herbert's office in Asheville, N. C., where part of the last complete story was written by O. Henry, namely, "Let Me Feel Your Pulse." It may not be generally known that William Sidney Porter was eighth in lineal descent from Peter Folger, Benjamin Franklin's grandfather.

The American Pharmaceutical Association will meet in Asheville, N. C., in 1923.

THE DEPARTMENT OF THE AMERICAN CONFERENCE OF PHARMACEUTICAL FACULTIES

[EDITOR'S NOTE.—With the closing of the year it will be of interest to the Conference Membership to know that Conference matters are in a satisfactory condition, and it is also satisfying to know that more schools are realizing that Conference Membership is not only to be highly prized but has almost become a necessity. This is indicated by the fact that during November the Executive Committee sent sub-committees to visit three schools that have made applications for membership and the Chairman of the Committee now has received notice from three more schools that their applications for membership will be submitted in the near future.

It is appropriate that the December number of the JOURNAL should contain a brief message from the new president, Charles H. LaWall, together with the personnel of the standing and special committees named by him to carry on the work of the Conference during his administration.

RUFUS A. LYMAN, *Chairman, Executive Committee American Conference Pharmaceutical Faculties.*]

THE NEXT STEP.

BY CHARLES H. LAWALL.

PRESIDENT AMERICAN CONFERENCE OF PHARMACEUTICAL FACULTIES.

It is very disquieting to some of the members of a calling which is suffering from "growing pains" to see serious discussions taking up valuable space in the pharmaceutical journals on "What is the matter with pharmacy?" Others of a more philosophic turn of mind smile and say nothing, realizing that the condition is only temporary and is not common to pharmacy alone. Medicine, dentistry, engineering—all have suffered or are suffering from the same symptoms, but with this difference: when they settle a thing, it is settled, but in pharmacy nothing ever seems to be definitely settled.

Just as soon as things appear to be all cleared up and progress planned along a certain line by unanimous consent, someone throws a monkey wrench into the machinery and the whole thing needs rebuilding. This is true of all lines of pharmaceutical endeavor, professional, educational and commercial. Self-interest is disguised in many ways and expediency often replaces principles as a guide to action. There is always a minority that will not or cannot go along.

Minority rule in any organization is a forerunner of disaster. There is only one way to make progress and that is to invite full and free discussion, provide for proper representation of all parties interested, agree upon principles to be followed, and then stick to the policy agreed upon.

No "next step" can be taken until the previous step is completed. Progress in pharmaceutical education has not measured up to the requirements of that great unappreciated public which pharmacy serves. A definite step was planned for 1923 in the unanimous agreement of all of the Conference School representatives, that four years' high school should then become the minimum entrance requirement for the study of pharmacy.

This step must be taken at the time agreed upon. It should have been taken years ago. To delay it longer would be to make pharmacy a subject for laughter and sympathy, and we want neither.

STANDING COMMITTEES OF THE AMERICAN CONFERENCE OF PHARMACEUTICAL FACULTIES.

President LaWall has appointed the following standing committees for 1922–1923:

No. 1. *On higher educational standards*—D. B. R. Johnson, *Chairman*, Edward Kremers, H. H. Rusby, Theodore J. Bradley, Charles B. Jordan.

No. 2. *On faculties*—Charles E. Caspari, *Chairman*, H. W. Youngken, A. H. Clark, E. F. Kelly, C. C. Glover.

No. 3. *On curriculum and teaching methods*—W. J. Teeters, *Chairman*, W. Bruce Philip, E. R. Serles, L. E. Sayre, W. C. Anderson.

No. 4. *On activities of students and alumni*—Edward Spease, *Chairman*, E. N. Gathercoal, Freeman P. Stroup, Edwin L. Newcomb, W. F. Sudro.

No. 5. *On uniform college bulletins*—J. A. Koch, *Chairman*, Jeannot Hostmann, C. C. Bass, A. Ziefle, W. G. Gregory.

No. 6. *On relations of pharmacy schools and other professional schools*—E. F. Kelly, *Chairman*, W. G. Crockett, Wm. Mansfield, C. H. Stocking, F. J. Wulling.

No. 7. *On relations of colleges with boards of pharmacy*—Jacob Diner, *Chairman*, G. C. Diekman, H. M. Faser, Chester A. Duncan, E. O. Kagy.

No. 8. *On examination questions*—C. B. Jordan, *Chairman*, E. L. Newcomb, A. F. Schlichting, C. W. Johnson, J. G. Beard.

No. 9. *On research*—H. V. Arny, *Chairman*, Edward Kremers, Albert Schneider, W. H. Zeigler, E. N. Gathercoal.

SPECIAL COMMITTEES.

(*a*) On Distribution of Information Concerning Prerequisite Legislation—W. B. Day, *Chairman*, E. L. Newcomb, P. H. Dirstine.

(*b*) On Investigation of Pharmacy Schools by Carnegie Foundation—T. J. Bradley, *Chairman*, R. A. Kuever, Louis Saalbach, Julius W. Sturmer.

(*c*) Representatives on the National Drug Trade Conference—W. F. Rudd, *Chairman*, T. J. Bradley, E. F. Cook.

SPECIAL APPOINTMENTS.

Representative to the Pharmaceutical Publicity Committee—E. L. Newcomb.

Representative on Board of Botanical Abstracts—E. N. Gathercoal.

MANUFACTURE OF ESSENTIAL OILS: 1921.

The Department of Commerce announces that the census reports show a considerable decrease in the activities of the establishments engaged primarily in the manufacture of essential oils (not including synthetic or artificial oils) during 1921, as compared with the year 1919. The total value of products reported amounted to $3,271,120 in 1921, and to $5,698,403 in 1919, a decrease of 42.6 percent.

Of the 35 establishments reported for 1921, 10 are located in Connecticut; 7 in Indiana; 6 in Michigan; 5 in New York; 4 in New Jersey; and 1 each in California, Pennsylvania, and Tennessee. New Jersey, the leading state in the industry in 1921, produced 38.2 percent of the total value of products in that year.

PERFUME PLANT CULTIVATION IS ATTEMPTED IN PALESTINE.

The American Consulate at Jerusalem reports to the U. S. Bureau of Foreign and Domestic Commerce that attempts at cultivating perfumery plants in Palestine on an extensive scale have been made this year by the Zionist agencies with a skilled personnel trained in southern France at the expense of Lord Rothschild. So far three classes of plants have been set out in Palestine and are reported to be doing nicely.

$5,000 FOR "PASTEUR DAY."

Philadelphia's City Council's Finance Committee has approved an appropriation of $5,000 for an observance, on December 27, of the centenary of the birth of M. Louis Pasteur.

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Schweiz. Apoth.-Ztg., 60 (Oct. 1922), 573

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Merck's Rep., 31 (Oct. 1922), 151

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Pract. Drug., 40 (Oct. 1922), 21

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J. Am. Chem. Soc., 44 (Nov. 1922), 2382

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J. Am. Chem. Soc., 44 (Nov. 1922), 2463

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Ber. deutsch. chem. Ges., 55 (Sept. 1922), 2423

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J. Chem. Soc., 121 (Sept. 1922), 1837
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Repert. pharm., 34 (Oct. 1922), 289
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Chem. Met. Eng., 24 (1921), 569; through *Südd. Apoth.-Ztg.*, 62 (Aug. 1922), 357
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Drogenhändler (1921), No. 104; through *Südd. Apoth.-Ztg.*, 62 (Aug. 1922), 358
Karrer, Sebastian, and Wulf, Oliver R.
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J. Am. Chem. Soc., 44 (Nov. 1922), 2391
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Ztschr. angew. Chem.; through *Pharm. Ztg.*, 67 (Oct. 18, 1922), 893
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J. Am. Chem. Soc., 44 (Nov. 1922), 2472
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Pharm. Ztg., 67 (Apr. 1922), 284
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Ber. deutsch. chem. Ges., 55 (1922), 2088; through *Pharm. Zentr.*, 63 (Oct. 1922), 539
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J. Am. Chem. Soc., 44 (Nov. 1922), 2377

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Merck's Rep., 31 (Oct. 1922), 138
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Chem. & Met. Eng. (Aug. 1922); through *Merck's Rep.*, 31 (Oct. 1922), 146
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J. Pharm. Soc. Japan (1922), No. 482; through *Südd. Apoth.-Ztg.*, 62 (Sept. 1922), 380
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Compt. rend.; through *J. Chem. Soc.*, 122 (Sept. 1922), I, 900
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J. pharm. chim., 26 (Oct. 1922), 241

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J. pharm. chim., 26 (Sept. 1922), 209

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J. Am. Chem. Soc., 44 (Nov. 1922), 2567

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J. Ind. Eng. Chem., 14 (Nov. 1922), 1055

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J. Ind. Eng. Chem., 14 (Nov. 1922), 1045

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Pharm. Ztg., 67 (Nov. 1922), 947

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Ber. deutsch. chem. Ges., 55 (Sept. 1922), 2403

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J. Am. Chem. Soc., 44 (1922), 2578

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Analyst (1922), 294; through *Pharm. Weekbl.*, 59 (Oct. 1922), 1045

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Ber. deutsch. chem. Ges., 55 (Sept. 1922), 2529

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Am. Drug., 70 (Nov. 1922), 33

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J. Ind. Eng. Chem., 14 (Nov. 1922), 1084

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J. Pharm. Soc. Japan, No. 484 (1922); through *Pharm. Zentr.*, 63 (Sept. 1922), 508

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J. Pharm. Soc. Japan; through *J. Chem. Soc.*, 1922 (Sept. 1922), I, 844

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J. pharm. chim., 26 (Oct. 1922), 258

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Chem. Trade J., 70 (1922), 144; through *Südd. Apoth.-Ztg.*, 62 (Sept. 1922), 379

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Helv. chim. acta; through *J. Chem. Soc.*, 122 (Sept. 1922), I, 811

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Perf. & Ess. Oil Rec., 13 (Oct. 1922), 355

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J. Pharm. & Exp. Therap., 20 (Oct. 1922), 163

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Perf. & Ess. Oil Rec., 13 (Oct. 1922), 356

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J. Ind. Eng. Chem., 14 (Nov. 1922), 1050

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J. Am. Pharm. Assoc., 11 (Oct. 1922), 796

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J. Chim. Soc., 121 (Sept. 1922), 1853

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Ber. deutsch. chem. Ges., 55 (Sept. 1922), 2597

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J. Am. Chem. Soc., 44 (Nov. 1922), 2450

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Ber. deutsch. chem. Ges., 55 (Sept. 1922), 2246
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J. pharm. Belg., 4 (Oct. 1922), 767
Van Eck, P. N.
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Pharm. Weekbl., 59 (Nov. 1922), 1098

COUNCIL BUSINESS

A. PH. A. COUNCIL LETTER NO. 3.

(Continued from p. 973, November Journal.)

16. Election of active members: **No. 17,** Raymond H. Duke, Mason City, Nebraska; No. 18, Joe Cording, Litchfield, Nebraska; No. 19, William Daniel Barnett, Gaithersburg, Md.; No. 20, T. Leith Gill, 5626 Connecticut Ave., Washington, D. C.; No. 21, Charles W. Wagner, 1101 5th St., N. W., Washington, D. C.; No. 22, K. E. Thompson, Colome, S. Dak.; No. 23, T. F. Nagee, Whitefish, Mont.; No. 24, Dr. K. Wientjes, Toendjoengan 35, Soerabaja, Ned. Oost Indie; No. 25, F. V. Cassaday, c/o The Cassaday Drug Co., 444 East Main St., Alliance, Ohio; No. 26, George L. Burroughs, Univ. School of Pharmacy, University, Miss.; No. 27, W. H. Ya Deau, 116 Maiden Lane, New York, N. Y.; No. 28, William Ferdinand Trukenbrod, 120 Jefferson St., Monroe, Wis.; No. 29, Otto L. Uhlig, Spearfish, S. Dak.; No. 30, Miss Alice Lucile Ritchie, 2139 Auburn Ave., Christ Hospital, Cincinnati, Ohio; No. 31, Neil E. Gordon, 2320 Reistertown Rd., Baltimore, Md.; No. 32, Sister Lucian Woodlock, St. Joseph's Hospital, Linwood & Prospect Sts., Kansas City, Mo.; No. 33, Edward F. Wagener, 1502 Shelby St., Indianapolis, Ind.; No. 34, Sister Mary Dominic, St. John's Hospital, St. Louis, Mo.; No. 35, Sister Mary Alfreda, E. Morgan St., Boonville, Mo.; No. 36, Susana F. Blechle, St. Mary's Hospital, East St. Louis, Ill.; No. 37, Sister M. Delphine Wendel, St. Mary's Hospital, Jefferson City, Mo.; No. 38, Sister M. Leonilla Hahn, St. Mary's Infirmary, 1536 Papin St., St. Louis, Missouri; No. 39, Sister Mary Theophila, Grand & Chippewa Sts., St. Louis, Mo.; No. 40, Edward S. Rose, 2056 4th Ave., Cedar Rapids, Iowa. A. G. DuMez, *Secretary.*

A. PH. A. COUNCIL LETTER NO. 4.

WASHINGTON, D. C., October 30, 1922.

To the Members of the Council

17. (Motion No. 5.) Motion to table the resolutions of the Ohio State Pharmaceutical Association (see Item 14). Under date of October 20, 1922, Secretary Day writes from Chicago as follows:

"Concerning the resolution submitted to the Council by the Council of the Ohio State Pharmaceutical Association, I am of the opinion that the Council of the A. Ph. A. should proceed cautiously. I realize that the situation in the state of Ohio on account of the state law enactment is such that pharmacists may be embarrassed if the deletion of wines and sherry wine from the new National Formulary is carried out but, at the same time, I believe that the Council of the A. Ph. A. would set a bad precedent if it overrules the action of the National Formulary Committee.

"The National Formulary Committee has no doubt considered carefully the deletion of these preparations and presumably possesses information that the A. Ph. A. Council does not have.

"I think that our immediate step should be to refer this resolution to the National Formulary Committee so as to give the Committee an opportunity to reconsider the matter if they wish to do so or to make a statement to the Council of the reasons which have led to their decision to delete wines and sherry wine from the next revision of the National Formulary. Meanwhile, I understand that the question of the admission of whisky and brandy to the Pharmacopoeia has been revived and it occurs to me that there is a possibility that not only

whisky and brandy but possibly wine as well will be restored to the Pharmacopoeia, in which case the aim sought by the Council of the Ohio State Pharmaceutical Association would be accomplished without action by the National Formulary Committee."

Under date of October 21, 1922, Wilbur L. Scoville, chairman of the National Formulary Committee, writes from Detroit as follows:

"*To the Council of the American Pharmaceutical Association.*

"*Gentleman:*

"The resolution of the Ohio State Pharmaceutical Association presented in Letter No. 3, page 7, to the Council calls for an explanation of the facts.

"First it may be remarked that the resolutions presented are in error: 1, in the statement of the composition of the N. F. Committee; 2, in the vote by which wines were deleted; and 3, in presuming to dictate how reports of committees shall not be made in the American Pharmaceutical Association.

"But disregarding these errors, I invite your attention to some facts:

"The question of deleting wines was first considered by the N. F. Committee in July 1920 when a *unanimous* vote to delete tentatively was passed. Then, in accordance with the publicity policy of the Committee, this intention was published in all (about 45) of the pharmaceutical journals in the following fall, each Branch of the A. Ph. A. was asked to consider the subject of deletions, with full list given, and more than 4000 letters were sent to individual pharmacists in different sections of the country, all requesting the attitude of pharmacists on the subject. As a result of this publicity it appeared that the great majority of pharmacists throughout the states were either indifferent to or in favor of the deletion of the medicated wines. A few protests directed to about five of the individual wines were considered by the Committee, and these were changed to tinctures with the synonym of wine to be retained. Thus all of the medicated wines which are in active demand can continue to be supplied on prescriptions or otherwise.

"The attitude of the pharmacists was further strengthened by the fact that 18 of our states cannot supply wine (not medicated) even on prescriptions, being prevented by state laws; by the fact that large manufacturing pharmacists are eliminating wine from their products and are discouraging its use as a vehicle or menstruum; and by the fact that government officers are making it increasingly difficult for pharmacists or manufacturers to obtain wine for medicinal or manufacturing use. All of which shows that it will be increasingly difficult for pharmacists to secure medicated wines in most states, and the official substitution of a 20% alcohol menstruum will make it unnecessary.

"But all of this was ignored by the Ohio State Pharmaceutical Association until the N. F. Committee again considered the subject in July 1921 in the light of the publicity results, and again voted *unanimously* to delete the wines.

"This action was again published in the pharmaceutical journals and brought forth a protest from the Ohio S. P. A. stating its reasons. This letter was published in full in the N. F. Committee Bulletins, a motion to reconsider was made, and the subject was discussed during a period of three months, when the motion to reconsider was lost by a mail vote of 9 to 2.

"The next incident was the appearance of the secretary of the O. S. P. A. at the Cleveland meeting of the A. Ph. A. protesting that this report of the N. F. Committee had been read and accepted in his absence, though the time and place of the report was stated plainly in the official program and was followed to the letter. At this time requests to reopen the subject in the A. Ph. A. meetings were refused.

"Step No. 3 was the issuing of a letter early in September addressed to the members of the O. S. P. A. in which the members were urged to send letters of protest to the chairman of the National Formulary Committee. Up to this date I have received four such letters—one from a manufacturer, who states that he has eliminated wine from most of his listed products and is discouraging its use; one from a wholesale druggist; one from a teacher in a pharmacy school; and one from a retail druggist.

"Step No. 4 is the presentation of resolutions, similar to these now presented to the Council, to the N. A. R. D. at its meeting in Detroit in the latter part of September. The writer was present at the meeting when these were discussed, was accorded the privilege of the floor and made an explanation of the facts which was courteously

received by the N. A. R. D. members. I have been informed, however, that the resolutions were adopted by the N. A. R. D. though I have not yet been officially informed of the fact.

"Step No. 5 is the presentation of the resolutions to the Council of the A. Ph. A. in Council Letter No. 3, and to which this letter is a reply.

"Now in view of the fact that the N. F. Committee has during the last two years made an energetic effort to secure the opinions of pharmacists on this question (and it should be stated that special credit is due to Dr. E. L. Newcomb and Dr. H. Engelhardt for sending out personal letters in their districts on the subject), and that as a result of this publicity the *evidence* which the N. F. Committee has received is strongly in favor of this action taken—even in Ohio if a majority of the officers of the O. S. P. A. acting together be excepted—I move that the resolutions of the Ohio State Pharmaceutical Association be laid on the table."

Prof. Clyde M. Snow under date of October 23, 1922, writes from Chicago as follows:

"In Re Deletion of Wines and Sherry Wine from the National Formulary:

"It is not the function nor within the scope of the National Formulary to delegate or to deprive any individual or group of individuals of the privilege of trafficking in medicinal preparations or alcoholic liquors, medicinal or otherwise, and any attempt to so divert its function is an attempt to prostitute its authority.

"The pharmacist is not authorized by law, by education or by training to set up his judgment as a criterion for the therapeutic value of any drug or preparation. This is exclusively the province of the physician. Up to this time there has been no considerable evidence that physicians generally are satisfied that sherry wine has any medicinal value. Those who do look upon it with favor agree that any therapeutic activity is due to the alcohol content.

"Alcohol is now official in the Pharmacopoeia, so the practice of medicine does not suffer any deprivation in the deletion of sherry wine from the National Formulary.

"The action of the National Formulary Committee in voting to delete the medicated wines was given wide publicity by being published in all the pharmaceutical journals. Comment on the action was invited by the chairman of the Committee.

"To subordinate the National Formulary which is a national standard to the statutes of any one of the states is of course untenable."

A. G. DuMez, *Secretary.*

A. PH. A. COUNCIL LETTER NO. 5.

(Abstract.)

WASHINGTON, D. C., November 6, 1922.

To the Members of the Council:

18. Election of member of the Committee on Research (see Items 7 and 11).

19. (Motion No. 6.) Motion to fix the date for the next annual meeting (see Item 15). It is moved by H. M. Whelpley, seconded by Wm. B. Day, that the week of September 3, 1923, be selected for the date of our next annual meeting. Prof. Day writes that this date is satisfactory to the N. A. B. P. A vote is being called for.

20. Applicants Nos. 17–40 elected to active membership.

21. Request that a committee be appointed to represent pharmaceutical interests in the Division of Biology and Agriculture of the National Research Council. Under date of October 17, 1922, Prof. H. V. Arny writes to Chairman Hilton as follows:

"Not knowing which of you should be addressed on the important topic I have to present, I am sending this letter to you jointly as well as copies to Secretary Day and Secretary DuMez, with the hope that the subject-matter be presented to the A. Ph. A. Council as quickly as possible in order that the results of the Council vote reach Dr. Lillie before the time he suggests in his letter.

"In 1920, Mr. Beringer, Dean LaWall and myself called on Dr. McClung, then Chairman of the Division of Biology and Agriculture, National Research Council, requesting his kindly offices in securing pharmaceutical representation upon the National Research Council. We found Dr. McClung, himself a graduate in pharmacy, very sympathetic and he offered to appoint a sub-committee on pharmaceutical research within his own Division.

"The following year our own Dr. Francis, the only member of the National Research Council actively engaged in pharmaceutical matters, was empowered by the Division of Chemistry to organize within that Division a sub-committee on pharmaceutical research. This sub-committee has been appointed and is now engaged in preliminary work and in

this work was immediately confronted by the difficulty that a sub-committee consisting of pharmacists, pharmaceutical chemists and pharmaceutical botanists scarcely fitted in the Division of Chemistry. Accordingly this (chemical) sub-committee as now constituted consists of one or two practicing pharmacists, a number of pharmaceutical chemists and no botanists. With Dr. Francis' approval, I took up with Dr. Heber W. Youngken the question of representation of pharmaceutical botanists and pharmacognosists in the Division of Biology and Agriculture, taking up the work with Dr. McClung where we had left off in 1920. Dr. McClung in the meanwhile had retired as chairman of the Division but we found in Dr. Lillie, his successor, a sympathetic listener and as the result of the negotiations conducted mainly by Dr. Youngken we have the following invitation from Dr. Lillie.

"'DEAR DR YOUNGKEN:

"'I beg to acknowledge your letter of the 19th enclosing a letter from Dr. Arny and to say that I am very happy that the American Pharmaceutical Association has decided to appoint a Committee to represent pharmaceutical interests in the Division of Biology and Agriculture. I assume that you will now proceed to secure the appointment of such a committee. It is our experience that a small committee, not exceeding five members, is more effective, and we find it difficult to arrange for meetings of committees with large membership. We shall, therefore, await your nominations for the membership of this committee and will then have them presented for approval to our Executive Committee to be passed through the usual channels of confirmation. If the proposed committee were named a committee on coöperation of the American Pharmaceutical Association, our Executive Committee would constitute it as its committee on pharmaceutical botany and pharmacognosy. This would require the action of our Executive Committee which, I think, would be assured if you desire this form of classification.

"'I am writing to Dr. Arny enclosing a copy of this letter. We hope that we may have your nominations in time for action at a meeting of the Executive Committee of this Division which we contemplate holding near the end of the year.'

"You will note that Dr. Lillie as the result of the Youngken-Arny negotiations takes it for granted the A. Ph. A. 'has decided to appoint a Committee to represent pharmaceutical interests in the Division of Biology and Agriculture.' I do hope that the A. Ph. A. Council will confirm this impression by voting that the committee of five suggested by Dr. Lillie be appointed by President Koch or whoever is the parliamentary appointing power in such cases and that this committee of five be chosen before December fifteenth.

"In closing may I point out that some of our council members have already expressed the opinion that Pharmacy should have more in the National Research Council than mere sub-committees within Divisions already established. With this contention I agree in principle but I always believe in the trite saying 'half a loaf is better than no bread.' Moreover sub-committees within the Division of Chemistry and the Division of Biology are fine starts, and I am confident that if the newly organized National Conference on Pharmaceutical Research properly performs its functions it will by logical evolution become a Division of Pharmacy in the National Research Conference. In conclusion, may I point out that both Dr. Francis and Dr. Lillie believe that there is every likelihood that the National Research Conference will be willing to send delegates to the National Conference on Pharmaceutical Research.

"Pardon the length of this letter, but I cannot present this important matter with sufficient clarity in more condensed form."

22. (Motion No. 7.) Motion to present a set of A. Ph. A. Year Books to the Library of the Pharmaceutical Society of Great Britain. The following is an extract from a letter of H. C. Kassner (Plaut Fellow of the New York College of Pharmacy at the University of London) to Prof. H. V. Arny:

"The subject upon which I am now going to write will, I know, interest and concern you as much as it has me. The Library of the Pharmaceutical Society of Great Britain, which is the circulating and the pharmaceutical library for the United Kingdom, has never received, for some unknown reason or oversight, the Year Books of the American Pharmaceutical Association. It might interest you to know that this library *has* the following publications of the American Pharmaceutical Association:

"1. A treatise on the 'Convention of the Pharmacists and Druggists held in the City of New York (N. Y. C. P.) in 1851.' (Before the A. Ph. A. was organized.)

"2. The publication on the 'National Pharmaceutical Convention in Philadelphia in 1852.'

"3. And ALL the 'Proceedings' of the American Pharmaceutical Association up to and including Vol. 59 of 1911, at which time I believe the A. Ph. A. Year Book was substituted for it.

"As the A. Ph. A. has already donated the Year Books of the A. Ph. A. to the University of Berne, etc., as recorded in the literature of the A. Ph. A., there is no reason why it should not be done in this instance

"According to the encyclopedia, the Library of the Pharmaceutical Society of Great Britain is the largest Pharmaceutical Library in the world. In the main room of this library the splendidly and costly bound Journals of the American Pharmaceutical Association and the 'Proceedings' occupy really about the most prominent space in the room. The library takes all the leading American pharmaceutical journals, such as the JOURNAL OF THE A. PH. A., the *Druggists' Circular*, the *American Journal of Pharmacy*, the *Pharmaceutical Era*, etc., etc.

"I have spoken with the Librarian and the Heads of the Pharmaceutical Society of Great Britain and I found that they would greatly welcome the acquirement of the Year Books of the A. Ph. A."

It is moved by Wm. B. Day, seconded by H. V. Arny, that this request be granted. A vote is being called for.

A. G. DUMEZ,
Secretary.

A. PH. A. COUNCIL LETTER NO. 6.

(Abstract.)

WASHINGTON, D. C., November 14, 1922.

To the Members of the Council:

23. Motion to table the resolutions of the Ohio State Pharmaceutical Association on wines in the N. F.—Result of vote.—Carried.

Prof. L. E. Sayre votes "yes" with the understanding that this can be raised from the table if future developments on the part of the N. F. or other committees make it wise to do so. He also states that the medicinal value of 15 or 20 percent alcohol is not the same as that of wine.

Chas. C. Neal votes "yes" with the following reservation: "cannot accept the logic of the N. F. Committee's action in giving 'wine' as a synonym for tinctures."

Under date of November 7, 1922, George M. Beringer writes as follows:

"In reading letter No. 4, I am impressed with the fact that some of the members of the Council do not appear to appreciate the importance of the subject presented in the resolutions submitted to the Council by the Ohio State Pharmaceutical Association.

"To the practical pharmacists in Ohio, the action of the National Formulary Committee in deleting all wines will cause a serious predicament, and it may be that a similar situation either exists or may exist in time in other states. I fear the members of the revision committee have been too greatly influenced by fanatical and radical temperance arguments that have no bearing at all upon the status of alcoholic liquors in medicine and the need of standards therefor.

"I have consistently and persistently refused to vote in favor of the deletion of distilled spirits and wines from the official lists because I realize the importance of these and of medicated wines in the practice of medicine and pharmacy as now carried on in this country.

"I am heartily in accord with the suggestion made by Secretary Day that the resolutions submitted by the Ohio State Pharmaceutical Association should be properly referred to the Committee on National Formulary for careful consideration. To table these resolutions, in accordance with motion No. 5, would show but scant courtesy to a state association that has called the attention of the American Pharmaceutical Association to a very important problem affecting practical pharmacy."

24. Motion to fix the date of the next annual meeting for week of September 3, 1923. Carried.

25. Appointment of a committee to draft resolutions on the death of Mrs. Lewis C. Hopp. Chairman S. L. Hilton of the Council announces the appointment of the following to serve as a committee to draft suitable resolutions on the death of Mrs. Lewis C. Hopp: Prof. H. V. Arny, *chairman*, Dr. James H. Beal, Prof. C. H. LaWall, Mr. Eugene R. Selzer and Mr. Frederick J. Cermak.

Members of the Council who are to serve on this committee will please take notice.

26. N. A R. D. approves of the meeting together of the executive committees of the N. A. R. D. and A. Ph. A. Under date of November 1, 1922, Secretary Samuel C. Henry of the N. A. R. D. writes to Secretary Day as follows:

"It is, I assure you, with very great pleasure and a considerable degree of satisfaction that I convey to you the information that the National Association of Retail Druggists at its recent meeting in Detroit unanimously adopted a resolution, authorizing our executive committee to meet with the executive committee of the A. Ph. A., such meeting to be held in alternate years in connection with the annual meeting of the A. Ph. A. and the N. A. R. D.

"As most of the members of our committee met with the representatives of your body at Cleveland, it is our understanding that your committee will meet with us at the time of our next annual convention. I will, therefore, inform you promptly upon the selection of the time and place of our next meeting.

"Trusting the coming together of the representatives of the two organizations in this may be productive of much good in binding the associations more closely together, I am."

Secretary Day, in forwarding this communication writes as follows:

"I enclose a letter from Secretary Henry of the National Association of Retail Druggists, which I believe should be included in your next Council Letter so that the members of the Council may clearly understand the situation concerning the attendance of our Executive Committee at the next convention of the N. A. R. D

"This may also influence our Executive Committee in deciding whether to have a meeting before our next convention, for if our Executive committee is to go to the N. A. R. D. convention, and presumably have their expenses paid by the A. Ph. A., they may not care to put the Association to the expense of holding two Executive Committee meetings in one calendar year."

It would appear that some action should be taken by the Council at this time definitely authorizing its Executive Committee to meet with the Executive Committee of the N. A. R. D. at the next meeting of the N. A. R. D., and to provide the necessary funds to cover the expenses of the members of the Committee who attend.

27. Motion to present a set of A. Ph. A. Year Books to the Library of the Pharmaceutical Society of Great Britain. Carried.

28. Petition for permission to organize a local branch of the A. Ph. A. to be known as the "University of North Carolina Branch of the American Pharmaceutical Association." The following petition for permission to organize a local branch of the A. Ph. A. at Chapel Hill, North Carolina, has been received:

"To the Council of the American Pharmaceutical Association:

"We, the undersigned, having fulfilled the requirements for members of the American Pharmaceutical Association, and being members of this Association, or having properly made application for membership in same, do hereby petition the Council of the American Pharmaceutical Association for a local branch of this Association, to be known as the 'University of North Carolina Branch of the American Pharmaceutical Association.'

(Signed)

A. L. Hogan,	H. R. Laidlaw,
G. W. C. Rush,	W. F. Craig,
Almond P. Westbrook,	J. Reeves,
L. M. Lamm,	E. L. Reeves,
J. L. Alderman,	E. V. Howell,
Sam Sowell,	J. G. Beard,
Homer E. Whitmire,	Frederick O. Bowman,
R. H. Curtis,	E. V. Kyser,
D. J. Womble,	H. R. Totten"

Prof. E. V. Howell, in presenting this petition, writes as follows:

"I am enclosing a petition for application to membership as a branch of the A. Ph. A. This branch will be maintained for students at the University and it may be possible to recruit from the surrounding cities. We have not approached the junior students as we wish to perfect our branch before going forward with our program. Please favor us with confirmation of our branch as soon as possible."

At the present time, only three signers (E. V. Howell, J. G. Beard and E. V. Kyser) of this petition are members of the Association, but a sufficient number of the remainder have made application for membership to bring the number above 15.

29. Nominations for honorary membership in the Association. The following nominations for honorary membership in the Association are made by Secretary Day, seconded by DuMez:

Dr. Hermann Thoms, Director of the Pharmaceutical Institute of the University of Berlin.

Dr. J. Gadamer, Director of the Pharmaceutical-Chemical Institute of the University of Marburg.

Dr. L. Van Itallie, Chairman of the Pharmacopoeial Revision Committee of the Netherlands.

Prof. Emile Perrot, Vice-Dean of the Faculty of Pharmacy of the University of Paris.

These nominations are made in view of the recommendations passed by the Scientific Section at Cleveland and of the following correspondence:

"CHICAGO, ILL., October 24, 1922.

"Dear Dr. DuMez:

"I enclose a letter from Professor Zörnig of the University of Basel which is self-explanatory. You will note that Professor Zörnig calls attention to the recent death of our only two honorary members residing in Germany, and suggests the nomination of Professor Gadamer of Marburg.

"Immediately upon receipt of this letter, I wrote to Dr. Kremers asking for his opinion concerning the nomination of Professor Gadamer, and I attach his reply.

Very truly yours,

(Signed) WM. B. DAY,
General Secretary."

"BASEL, October 2, 1922.

"Prof. Wm. B. Day, General Secretary,
American Pharmaceutical Association,
Chicago, Ill.

"My dear (esteemed) Colleague:

"To-day I received the sad news of the death of Dr. Herman Schelenz in Cassel, Honorary Member of the American Pharmaceutical Association. Dr. Schelenz died on the 28th of September at the age of 75. This was the death of the last of the three German Honorary Members of your Association. Prof. Arthur Meyer, Marburg, whom I had the pleasure of visiting about the middle of July, passed away the end of August following a second attack of apoplexy.

"There are, which as a German I sincerely regret, none to-day among the German pharmaceutical teachers and research workers who are Honorary Members of the highly esteemed (to us) American Pharmaceutical Association.

"A humble question. If the Association sees fit to award Honorary Membership to one of the aforementioned German scholars, might I make a suggestion (nomination—literally)? I am thinking of Prof. Dr. J. Gadamer, Professor of Pharmaceutical Chemistry and Director of the Pharmaceutical-Chemical Institute of the University of Marburg.

"Prof. Gadamer is undoubtedly, to-day, our best German pharmaceutical chemist, he is (was) a student of Ernst Schmidt at Marburg, for several years an Honorary Member of your Association, graduated under Schmidt, was Privatdozent at Marburg and from there became Resident Professor at Breslau. While yet alive, Schmidt saw to it that his best student should become his successor. Gadamer will also publish the next edition of the well-known 'Textbook of Pharmaceutical Chemistry,' by Schmidt. This may seem a rather bold suggestion, but I could not name a better German from the whole list (or circle) of aforementioned pharmaceutical research workers.

"It gave me great pleasure that the last award of the Flückiger Medal went to an American, Prof. Dr. Frederick Power of Washington. I know Prof. Power personally, having visited him in 1914 in London. The Medal this year went to the Swiss Pharmaceutical Society. I had the pleasure of giving a paper (address) at this meeting, and had the honor of being the only Swiss Professor to win it. It was to me a great joy.

"With the expression of sincerest regards,

(Signed) F. H. ZÖRNIG."

"MADISON, WIS., October 23, 1922.

"Prof. Wm. B. Day, Secy.,
American Pharmaceutical Association.

"My dear Professor Day:

"It gives me pleasure indeed to endorse the nomination of Prof. Gadamer to honorary membership in the A. Ph. A. But, as taking precedent, I should like to suggest the name of Professor H. Thoms, Director of the Pharmaceutical Institute of the University of Berlin at Dahlem, for honorary membership in our association. I supposed that he was an honorary member and was surprised to learn, after reading your letter, that his name is not on our list.

Sincerely yours,

(Signed) EDWARD KREMERS."

"CHICAGO, ILL., November 1, 1922.

"Dear Dr. DuMez:

"In regard to the election of honorary members, I learn from Eberle that the Scientific Section voted a recommendation which should have gone to the Council but apparently the Chairman of the Section did not convey it to the Council.

"This recommendation proposed the election to honorary membership of Dr. L. Van Itallie, Chairman of the Pharmacopoeia Revision of the Netherlands, and Dr. Hermann Thoms, Director of the Pharmaceutical Institute of Berlin and a member of the German Pharmacopoeia Revision Committee.

"I suggest that we include these two men in our list of honorary members proposed for election at this time along with Professor Gadamer of Marburg, and that we also include Professor Emile Perrot, Professor of Materia Medica and Vice-Dean of the Faculty of Pharmacy of the University of Paris, who has recently been awarded the Hanbury Medal by the Pharmaceutical Society of Great Britain.

Very truly yours,

(Signed) WM. B. DAY,

General Secretary."

30. Election of Active Members. No. 41, Clarence W. Hart, 13825 Beaumont Ave., Cleveland, Ohio; No. 42, Mervin Hoyt Sidener, Beach, N. Dakota; No. 43, Harold E. Schlichting, Dept. of Agriculture, Lansing, Mich; No. 44, Jesse G. Matteson, Creston, Ohio; No. 45, Carl H. Kienker, c/o Wm S Merrell Co., 5th & Pike Sts., Cincinnati, Ohio; No. 46, Richard Monroe Olmlee, Bedford, Pa.; No. 47, Clyde N. Phelps, P. O. Box No. 25, Stamford, Texas; No. 48, Walton Lester Sanderson, 2209 15th St., Troy, New York; No. 49, E. K. Porter, Carbondale, Illinois; No. 50, Joe Elmer Rex Taylor, Severance Union Medical College, Seoul, Korea; No. 51, Theodore Edwin Thress, 8809 Beckman Ave., 7102 Central Ave., Cleveland, Ohio; No. 52, Harry F. Simons, Jr., 1936 N. 6th St., Philadelphia, Pa.; No. 53, Ramlal Balaram Bajpai, 477 Keap Street, Brooklyn, N. Y.; No. 54, Ralph J. Walker, Box 35, Norton, Va.; No. 55, Sam Sowell, Chapel Hill, N. C.; No. 56, John Everett Tilley, P. O. Box 2007, Chapel Hill, N. C.; No. 57, Rufus Harrison Curtis, P. O. Box 187, Chapel Hill, N. C.; No. 58, Almond Percy Westbrook, P. O. Box 485, Chapel Hill, N. C.; No. 59, William Franklin Craig, P. O. Box 63, Chapel Hill, N. C.; No. 60, Alexander Lacy Hogan, Box No. 870, Chapel Hill, N. C.; No. 61, George Washington Carr Rush, P. O. Box No. 870, Chapel Hill, N. C.; No. 62, Frederick Oscar Bowman, P. O. Box No. 697, Chapel Hill, N. C.; No. 63, Homer Edward Whitmire, Chapel Hill, N. C.; No. 64, Jacob Leroy Alderman, Chapel Hill, N. C.; No. 65, Herbert R. Laidlaw, P. O. Box 410, Chapel Hill, N. C.; No. 66, Lewis Marion Lamm, P. O. Box 1113, Chapel Hill, N. C.; No. 67, Jefferson Reeves, P. O. Box 410, Chapel Hill, N. C.; No. 68, Henry Roland Totten, Chapel Hill, N. C.

A. G. DUMEZ, *Secretary.*

REPORT OF THE GENERAL SECRETARY.

In membership the Association is at least holding its own which is better than some other professional and scientific societies have done during the past year. The membership August 4, 1922, was 3548.

The income of the National Formulary for 1921 was but slightly less than for the preceding year, and for the first six months of 1922 shows an increase over the corresponding period a year ago. The total sales of N. F. IV to June 1, 1922, were 38,370 copies, amounting to $66,049.67. The Association has already expended on the revision of N. F. IV, $2,457.72 (to July 1).

Volume 8 of the YEAR BOOK was distributed last December. Nearly 3300 copies were sent to members. About 200 copies were retained as stock. The sales of Proceedings and YEAR BOOKS in 1921 amounted to only $64.35. The YEAR BOOK (Volume 9) is ready for distribution and will be mailed soon to all dues-paid members.

The sales of gold bars have fallen off greatly and to avoid further accumulation of unsalable bars, the General Secretary will take orders for these and supply only those who place orders with him at the meeting.

A. Receipts and Expenditures on Account of National Formulary IV.
January 1, 1921, to December 31, 1921, Inclusive.

1. Expenditures.

J. B. Lippincott Co.—publication	$1,800.00	
Louis C. Hesse—labels	12.75	
Journal of the A. Ph. A.—advertising	54.00	
Total	1,866.75	
Transferred to A. Ph. A. Research Fund	2,020.84	
Total		$3,887.59

2. Receipts.

Sales:	quarter ending March 1, 1921	$1,215.66	
	quarter ending June 1, 1921	784.91	
	quarter ending Sept. 1, 1921	987.39	
	quarter ending Dec. 1, 1921	3,496.71	
Total			$6,484.67

B. Supplementary Report.
Receipts and Expenditures on Account of N. F. IV.
January 1, 1922, to August 1, 1922.

1. Expenditures.

J. B. Lippincott Co.—publication	$1,760.00	
Louis C. Hesse—labels	12.75	
Journal of the A. Ph. A.—advertising	126.00	
Total	1,898.75	
Transferred to A. Ph. A. Research Fund	1,679.53	
Total		$3,578.28

2. Receipts.

Sales:	quarter ending March 1, 1922	$1,487.76	
	quarter ending June 1, 1922	893.14	
Total			$2,380.90

C. National Formulary IV—Summary of Sales.

Bindings.	Copies sold.	Price.	Amount.	
March 1, 1921:				
Muslin	713	$1.605	$1,144.364	
Buckram	63	1.935	121.905	
Interleaved	0	.....	.....	
Total	776		1,266.27	
Less allowance for freight			50.61	
Remitted to Treasurer				$1,215.66

Bindings.	Copies sold.	Price.	Amount.	
June 1, 1921:				
Muslin	427	$1.605	$685 335	
Buckram	78	1.935	150.930	
Interleaved	1	2.875	2.875	
Total	506		839.140	
Less allowance for freight			54.23	
Remitted to Treasurer				$784.91

Bindings.	Copies sold.	Price.	Amount.	
September 1, 1921:				
Muslin	441	$1.605	$707.805	
Buckram	143	1.935	276.705	
Interleaved	1	2.875	2.875	
Interleaved (gratis), P. Henry Utech	1	.....	.....	
Total	586		$987.385	
Remitted to Treasurer				$ 987.39

Bindings.	Copies sold.	Price.	Amount.	
December 1, 1921:				
Muslin	1,237	$1.605	$1,985.385	
Buckram	799	1.935	1,546.065	
Interleaved	2	2.875	5.75	
Total	2,038		$3,537.200	
Less allowance for freight			40.49	
Remitted to Treasurer				$3,496.71

Bindings.	Copies sold.	Price.	Amount.	
March 1, 1922:				
Muslin	622	$1.605	$998.310	
Buckram	278	1.935	537.930	
Interleaved	2	2.875	5.750	
Total	902		$1,541.990	
Less allowance for freight			54.23	
Remitted to Treasurer				$1,487.76

Bindings.	Copies sold.	Price.	Amount.	
June 1, 1922:				
Muslin	475	$1.605	$762.375	
Buckram	93	1.935	179.955	
Interleaved	1	2.875	2.875	
Total	569		945.205	
Less allowance for freight			52 07	
Remitted to Treasurer				$893.14

D. Complete Summary of Copies of N. F. IV Printed and Bound by J. B. Lippincott Co.—August 1, 1922:

Series.	Muslin.	Buckram.	Interleaved.	Total.
A	4,500	5,000	500	10,000
B	5,700	4,100	200	10,000
C	4,000	1,000	...	5,000
D	2,700	300	...	3,000
E	2,350	550	...	3,000
F	1,500	1,500	...	3,000
G	2,000	1,000	...	3,000
H	2,000	1,000	...	3,000
I	1,000	500	...	1,500
Total	25,750	15,050	700	41,500
Printed but unbound (Series I). In stock.				1,500

E. COMPLETE SUMMARY OF COPIES OF N. F. IV RECEIVED AND SOLD BY MIDLAND PUBLISHING CO.—JUNE 1, 1922

Year.	Muslin.	Buckram.	Interleaved.	Total.
1916	7,993	7,279	487	15,759
1917	4,472	1,975	76	6,523
1918	2,750	493	8	3,251
1919	2,458	1,116	21	3,595
1920	2,459	1,391	17	3,867
1921	2,818	1,083	5	3,906
1922 (6 mo.)	1,097	371	3	1,471
	24,047	13,708	617	38,372*
	Muslin.	Buckram.	Interleaved.	Total.
As per summary	24,047	13,708	617	38,372
Adjustments	−7	+38	−33	−2
Net	24,040	13,746	584	38,370
Stock on hand at Midland Publishing Co., June 1	1,710	1,304	116	3,130
Total	25,750	15,050	700	41,500

F. RECEIPTS FROM N. F. IV.

Year.	
1916	$28,108.69
1917	10,973.06
1918	4,408.97
1919	7,050.13
1920	6,632.25
1921	6,484.67
1922 (6 mo.)	2,391.90
Total	$66,049.67

G. ACCOUNT OF N. F. V.

1. Receipts	None
2. Expenditures:	
1919 and 1920	$1,033.89
1921	1,169.98
1922 to Aug. 1	253.85
Total	$2,457.72

H. ACCOUNT OF OLD EDITIONS OF N. F., PROCEEDINGS AND YEAR BOOKS.

1. Receipts, 1921:		2. Expenditures, 1921:	
Old editions N. F.	$4.75	W. B. Day, postage	$.87
Proceedings	22.20	H. V. Arny, Journal, postage	20.77
Year Books	37.40	Total	21.64
Total	$64.35		

SUPPLEMENT—JAN. 1, 1922, TO AUG. 1, 1922.

1. Receipts:		2. Expenditures: (Year Book, Vol. 8)	
Old editions N. F.	$4.75	W. B. Day, postage, etc.	$51.74
Bulletin	4.00	H. V. Arny, Journal, postage, etc.	18.21
Proceedings	2.50	Eschenbach Co. publication	6,459.45
Year Books	54.00	W. T. Robinson (labels)	6.50
Total	$65.25	Total	$6,535.90

I. ACCOUNT OF BADGES AND BARS YEAR 1921.

Receipts from sales			$33.15
Expenditures—A. M. Fetting Co., 25 New Orleans bars			42.00
Stock on hand Jan. 1, 1922:			
Gold badges	4	Gold bars	138

* Includes 48 complimentary copies; adjustments for defective copies, returned and rebound; exchanges, etc.

J. Summary of Receipts of General Secretary—Jan. 1, 1921, to Dec. 31, 1921.

N. F. old editions	$4.75
N. F. IV	6,484.67
Year Books	37.40
Proceedings	22.20
Badges and bars	33.15
Total	$6,582.17

K. Supplementary Report of Receipts—Jan. 1 to July 1, 1922.

N. F. old editions	$4.75
N. F. IV	2,380.90
Year Books	54.00
Proceedings	2.50
Bulletins	4.00
Total	$2,446.15

Respectfully submitted,

Wm. B. Day, *General Secretary.*

REPORT OF TREASURER OF AMERICAN PHARMACEUTICAL ASSOCIATION, JANUARY 1 to JULY 31, 1922.*

The annual report of the Treasurer for the current year ending Dec. 31, 1922, will be published in the following edition of the Year Book, and an abstract of it will be given in the Journal of the A. Ph. A. This partial report covers the financial transactions during the period from Jan. 1 to July 31, 1922, or a period of seven months.

Prior to assuming the duties of the Treasurer on Jan. 1, 1922, I recommended to the Finance Committee the selection of the National Exchange Bank of Baltimore as the bank of deposit and this recommendation was approved. That part of the current account subject to check is carried in this bank, together with the seven permanent funds and the two trust funds enumerated later, all subject to 3% interest compounded monthly. That part of the current funds known as the savings account is carried in the Boston Penny Savings Bank, as heretofore, together with two small balances belonging to the Ebert Prize and the Endowment Funds. During the last semi-annual period the Boston Penny Savings Bank reduced the rate of interest from 5% to 4½%, compounded semi-annually, and advise that this rate will likely maintain for some time. With the approval of the Finance Committee, a safe deposit vault was rented at the National Exchange Bank and the securities of the Association as turned over to me by former Treasurer H. M. Whelpley and amounting to $86,500.00 are deposited therein, together with other important papers.

The A. Ph. A. Funds, July 31, 1922.

Current:		
Bonds and Savings Account	$26,702.57	
Checking Account	4,136.56	$30,839.13
Permanent:		
Life Membership	$28,339.86	
Ebert Prize	1,374.90	
Centennial	3,809.21	
Endowment	9,409.74	
Ebert Legacy	5,496.10	
Research	21,698.34	
Headquarters Building	801.28	$70,929.43

* Presented and received at the Cleveland A. Ph. A. meeting, 1922. See page 717, September Journal.

Trust:			
Procter Monument	$10,890.31		
Remington Honor Medal	1,195.64	$12,085.95	$113,854.51
Total Funds:			
Assets		101,768.56	
Held in Trust		12,085.95	$113,854.51

The following is a list of the bonds held for the Association and for the Trust Funds:

Massachusetts State 3% Bonds	$14,000.00	
St. Louis City 4% Bonds	$12,000.00	
U. S. Liberty 4¼% Bonds	60,500.00	$86,500.00

The bonds are listed at par value.

The total funds on Jan. 1, 1922, amounted to $115,224.74, and it would, therefore, seem that the total assets of the Association had decreased $1,370.23 during the period covered by this report. It should be remembered, as pointed out by former Treasurer Whelpley, that no YEAR BOOK was paid for during the year 1921, and also that one salary item chargeable to the year 1921 was not paid prior to December 31st, and, consequently, these two items, which have since been paid, and amounting to $6,598.10, should have been deducted from the total funds of Jan. 1, 1922. If this were done, the assets of the Association on the first day of January 1922 would have been $108,626.64, and the increase of assets from that date to July 31, 1922, is $5,227.87, which compares favorably with the increase for the same period during the year 1921. Volume IX of the YEAR BOOK is now being distributed, and its cost, together with salaries and other expenses, will have to be met.

Attention should be called to the fact that the Headquarters Building Fund is a new fund, and that this brings the total number of permanent funds to seven.

The Editor of the JOURNAL willl submit a detailed account, but a record should be made of the receipts and expenses of the JOURNAL.[1]

Receipts $5,066.27; expenses $6,490.97; leaving a deficit of $1,424.70.

The income from the National Formulary still remains small, as the receipts from the Fourth Revision are not very large and the expenses of the Fifth Revision are increasing. Since January 1, 1922, the receipts have been $2,442.40 and the expenses $2,152.60, leaving a balance of $289.80.

The membership as of August 9, 1922, was as follows:

Honorary Members	13
Life Members (Old Style)	5
Life Members (New Style)	120
Membership only	25
Full dues paid for 1922	2,520
Full dues paid for 1923	85
Total	2,768

The last mentioned are new members elected since July 1st, whose dues apply to 1923.

One hundred and thirty-nine new members have been elected during this meeting which brings the total membership to date to 2907.

In closing this report I wish to pay grateful acknowledgment of the kindly assistance given me in learning the duties of the office and in executing them by former Treasurer Whelpley and Mrs. Whelpley, by all the officers and members of the Association with whom I have been brought into contact and by the officials of the National Exchange Bank of Baltimore. Even with such assistance and guidance, one can become thoroughly acquainted with the work of the treasurership and really qualified to execute it only through personal experience, and it is hoped that the apparent shortcomings of the period covered by this report will be considered in this light.

Please be assured that your present treasurer welcomes any suggestions or criticisms that will enable him to better serve the American Pharmaceutical Association.

Respectfully,

E. F. KELLY, *Treasurer.*

[1] See pp. 831–833, October JOURNAL A. PH. A.

THE SECTIONS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

(*Continued from p. 959, November Journal.*)

QUESTIONNAIRE SENT TO CONFERENCE SCHOOLS OF PHARMACY BY SECRETARY W. F. GIDLEY, SECTION ON EDUCATION AND LEGISLATION, A. PH. A.

A. Correct name and address of school.
B. Number of students admitted to first year class (freshmen).
C. Number of students admitted to second year class (sophomores).
D. Number of students admitted to third year class (juniors).
E. Number of students admitted to fourth year class (seniors).
F. Number of other students admitted.
G. Total number of students admitted.
H. Number of high school graduates in first year class.
I. Total number of high school graduates in all classes.
J. High school educational requirements for admission to course.
K. Number admitted on certificate from high school only.
L. Number admitted on certificate of state only.
M. Number admitted on both high school and state certificate.
N. Number admitted by examination.
O. By whom examined.
P. Total number graduated this year with the degree of Ph.G.
Q. Total number graduated this year with the degree of Ph.C.
R. Total number graduated this year with the degree of B.S.
S. Total number graduated this year with other degrees. (Please specify what the degrees are.)

In the charted replies questions "O" and "S" may be omitted and such information presented by footnotes from the data in column "N" in the case of question "O" and by noting here, in the case of question "S," that only two colleges report having given degrees other than the Ph.G., Ph.C., or B.S. in Pharmacy. The Louisville College of Pharmacy gave one degree of Doctor of Pharmacy—Phar.D. The Pittsburgh College of Pharmacy gave two degrees of "Hospital Technologist" and eight "Certificates of Proficiency."

In bringing the replies to a uniform type so as to be charted the common practice of calling straight two-year students "juniors" and "seniors," or "freshmen" and "seniors" had to be abandoned and in its place was adopted the policy of calling students who have been in school one, two, three, or four years freshmen, sophomores, juniors, or seniors, respectively. In schools having only two regular years of work "post graduates" are listed as juniors but explanatory notes appended to explain such classification. It will be noted that under entrance requirements many schools use the phrase "or equivalent educational requirements" and probably many others not reporting it could have used it. Rulings under such entrance requirements are usually carefully made, but a "loop-hole" is here presented which must look unsightly to those of our sister professions having more strict requirements.

The full name of the schools will be found in the Proceedings of the American Conference of Pharmaceutical Faculties. The charted replies from the schools follow.

CHARTED RESPONSES FROM SCHOOLS OF PHARMACY.

		B.	C.	D.	E.	F.	G.	H.	I.
1.	Ala. Polytech. Inst. Dept. Pharm.....	40	22	0	3	0	65	30	47
2.	U. So. Cal. College of Pharmacy.....	115	54	8	2	..	179	81	130
3.	U. Col. College of Pharmacy.....	18	10	9	4	1[18]	42	18	41
4.	G. W. U. National College of Pharmacy	13	6	0	1	1[10]	21	14	20
5.	U. Ill. School of Pharmacy.....	201	56	0	0	8	256	199	246
6.	Purdue U. School of Pharmacy.....	55	23	9	3	1[16]	91	55	90
7.	State U. Ia. College of Pharmacy.....	46	29	1	1	0	77	44	75[23]
8.	U. of Kas. School of Pharmacy.....	63	23	4	2	36	128	63	128
9.	Louisville College of Pharmacy.....	121	57	2[11]	0	0	180	41	65
10.	Tulane U. School of Pharmacy.....	45	20	4	0	0	69	29	49

11.	U. of Md. Dept. of Pharmacy.....	53	32	1	0	13	99	45	81
12.	Mass. College of Pharmacy.....	259	114	15[11]	0	9	397	198	272
13.	U. of Mich. College of Pharmacy.....	10	29	19	24	4	86	10	85
14.	U. of Minn. College of Pharmacy.....	50	..	37	38	..	125	47[24]	122
15.	U. of Miss. School of Pharmacy.....	37	26	..	..	..	63	37	63
16.	Creighton U. College of Pharmacy....	53	28	3	0	0	84	50	80
17.	Brooklyn College of Pharmacy.....	238	237	0	0	0	475	60	145
18.	U. of Buffalo College of Pharmacy....	101	65	0	0	1	167	49	81
19.	Columbia U. College of Pharmacy.....	358	245	10	2	78	693	170	292
20.	Fordham U. College of Pharmacy.....	180	65	0	0	0	245	65	83
21.	U. N. C. School of Pharmacy.....	42	17	2	0	11	72	33	53
22.	Western Reserve U. School of Pharmacy	70	50	7	..	2	129	70	125
23.	Ohio State U. College of Pharmacy....	122	..	77[13]	..	1[14]	123	121	198
24.	State U. Okla. School of Pharmacy....	92	61	3	3	10	169	69	115
25.	Ore. Agr. College School of Pharmacy.	95	55	36	34	0	210	85	189
26.	U. of Pittsburgh College of Pharmacy.	203	153	3	1	7	367	151	237
27.	Med. Col. S. C. College of Pharmacy...	44	41	0	0	0	85	7	25
28.	So. Da. School of Pharmacy.....	38	20	5	2	2[19]	68	38	67
29.	U. of Tenn. School of Pharmacy.....	32	19	..	..	1	52	32	52
30.	Baylor U. School of Pharmacy.....	46	19	..	..	..	65	33	49
31.	Med. College Va. School of Pharmacy.	47	34	0	0	6	87	39	63
32.	State Wash. School Pharmacy.....	58	31	11	5	3[16]	108	56	105
33.	U. of Wash. College of Pharmacy.....	58[26]	40	10	6	0	114	58	114
34.	U. of W. Va. School of Pharmacy.....	21	0	0	0	0	21	21	21
35.	U. of Wis. Course in Pharmacy.....	49	27	17	9	3[24]	96	49	93

(Numbers refer to same schools as in part of table above.)

	J.—High School educational requirements.*	K.	L.	M.	N.	P.	Q.	R.
1.	2–4[1]	36	0	...	4[2]	9	0	3
2.	3–4[29]	115	...	...	0	48	0	0
3.	4	0	0	0	0	0	2	4
4.	4	19	...	1	0	0	0	1
5.	4	199	0	0	2[22]	45	0	0
6.	4	90	0	0	0	17	0	3
7.	4	...	...	...	..	23	1	1
8.	4	...	...	...	..	14	2	1
9.	2	168	...	...	12	53	1	0
10.	3	20	0	0	0	19	4	1
11.	4	...	0	...	0	28	1	0
12.	4	388	...	...	9	74	9	0
13.	4	9	0	9	1	0	14	5
14.	4[25]	50	0	50	0	0	27	6
15.	4	63	...	...	..	25	..	.
16.	4	84	0	0	0	26	3	0
17.	2[4]	q. c.[5]	...	...	..	217	..	.
18.	2	1	166	167	0	61	0	0
19.	2[6]	L[7]	86	607	86[8]	209	7	2
20.	3[9]	...	...	...	..	...	..	.
21.	14U[17]	61	...	...	..	12	2	0
22.	4[27]	0	0	70	3[23]	45	5	0
23.	4	121	0	121	0	30	0	7
24.	..	115	...	115	6	33	3	3
25.	13U[15]	...	0	0	0	20	10	7
26.	4	...	367	...	0	100	2	1
27.	4	85	0	85	0	36	0	0
28.	4	67	0	0	0	19	2	1
29.	4	52	0	52	0	16	0	0
30.	4[3]	65	...	...	..	17	0	0
31.	15U[12]	...	...	...	4	20	0	0
32.	4	...	...	...	0	16	4	4
33.	4	114	0	114	0	24	8	6
34.	15U	21	0	21	0	9	0	0
35.	4	93	0	93	0	18	0	9

A few of the gleanings from this chart are:

* Numbers indicate number high school years, units are designated by U., and "qualifying certificates" by q. c.

[1] See next page for footnotes.

1.—Total number of students in these schools, 5248. 2.—Total number of H. S. graduates in these schools, 2608, or 50%. 3.—Number of these schools requiring 4 yrs. H. S. for entrance—at least 25, or 71%+. 4.—Number in these schools who are seniors of four year courses, 148. 5.—Number of students entering, 3073. 6.—Number of H. S. graduates entering, 1067 or 34%+. 7.—Pharmacy schools are doing their part in training disabled soldiers. 8.—The Ph.C. degree seems firmly established as the 3 year degree. 9.—Number of B.S. degrees granted (among which number we should have some excellent research workers), 65. 10.—There are several large and old schools from whom no replies were received. 11.—It would be a fair estimate to say that there were this last year 10,000 students in schools of pharmacy, recognized and otherwise. 12.—Comparing my figures with those of Prof. Zeigler on this same work last year I find: (*a*) A somewhat greater number of students in all classes in pharmacy schools of Conference type. (I report a smaller figure, but from a less number of schools.) (*b*) The entering class is considerably larger than last year but the percent of high school graduates seems much smaller—"about 70%" as against my 34%. The percent of H. S. graduates in all the classes is about the same—57% last year against 50% this year. (*c*) There were about 70% more B.S. degrees granted this year than last, and a still higher percentage of Ph.C. degrees.

QUESTIONNAIRE SENT TO STATE BOARDS OF PHARMACY.

A. Name of state.

B. Number examined for Pharmacist for year.
(Please take for year if possible June to June.)

C. Number examined for Assistant Pharmacist for year.

D. Total number examined for year.

E. Of the above: Pharmacist passed.

F. Of the above: Assistant Pharmacist passed.

G. Total number passed for the year.

H. Number from within state registered without examination.
(State if upon diploma or how, omitting reciprocal registration.)

I. Number registered by reciprocity.

J. Is N. A. B. P. plan followed?

K. New laws affecting pharmacy since last report (1921).

L. Board's rulings raising educational requirements in addition to or in place of above laws.

M. Unsuccessful attempts to raise educational requirements.

N. Unsuccessful because of lack of support:
1, of schools. 2, of druggists. 3, of legislature. 4, of Pharmacy Boards.

Thirty-six out of forty-eight secretaries of State Boards of Pharmacy replied promptly—this being about twenty percent better than the last two years.

These footnotes refer to table on preceding pages.

[1] 2 yr. high school for 2 yr. course; 4 yr. for 3 and 4 yr. courses. [2] Examined by committee on Entrance Examinations. [3] H. S. graduation or on approval, under same conditions governing admission to College of Fine Arts, at discretion of dean. [4] Or its educational equivalent. [5] All students admitted on student qualifying certificate from University of the State of N. Y. [6] Or 30 regents' credits. [7] If we take from 607 the 86 given under "L" we have 521 as an answer for "K." [8] Regents' Exams. [9] "After Jan. 1, 1922, is required a certifying certificate based on completion of 3 years' H. S. work or equivalent of 54 regents' academical counts passed at 75." [10] "Admitted conditionally." [11] Post graduates. [12] 15 units or equivalent. [13] This figure "77" represents sophomores, juniors and seniors together. [14] Two special students were admitted under the old law. [15] 13 H. S. units required for entrance. 15 units required for graduation. Two units must be made in Summer School, if missing. [16] "Federal Board" or "War Veteran Student." [17] "Must be at least 17 yrs. of age and must have completed a high school course of study or must present evidence of 14 units. [18] The other 11 have college credits in addition to high school credits. [19] One graduate student and one vocational student. [22] One examined by U. of Ill. examiner and one by N. Y. regents. [23] Two students in the first year class were Federal Board students and not candidates for degrees. [24] Three students as per footnote 23. [25] H. S. graduation with subject requirements. [26] Two year course dropped. All entering students of 1921 registered for at least the three year course. [27] H. S. graduation and a grade of 80 or above in $9^1/_2$ prescribed units. [28] Examined by Adelbert College, Western Reserve University. [29] 3 yrs. H. S. for Ph.G. and H. S. graduation for B.S.

SCHEDULE OF RESPONSES TO QUESTIONNAIRE FROM BOARDS OF PHARMACY.*

A. States and territories.	B.	C.	D.	E.	F.	G.	H.	I.	L.
1. Ala.	93	9	102	69	27	96	0	19	0
2. Alaska	0	0	...	...	...	...	0	3[1]	0
3. Ariz.	22	3	...	17	3	20	H[2]	..	L[4]
4. Ark.	255	...	255	116	...	116	0	6	L[5]
5. Col.	69[6]	...	69	21	15[7]	36	4[8]	44	0
6. Conn.	152	191	343	49	77	126	0	11	L[11]
7. Fla.	65	...	65	16	...	16	H[12]	66	..
8. Ga.	327	...	327	152	...	152	0	..	..
9. Ida.	22	...	22	11	...	11	0	8	0
10. Ind.	137	81	218	76	54	130	0	30	..
11. Ill.	663	167	830	225	90	315	0	112	0
12. Ia.	265	...	265	140	...	140	0	13	L[14]
13. Kas.	320	10	330	52	3	55	0	8	L[16]
14. Ky.	81	33	124	35	21	56	0	21	L[17]
15. La.	82	27	109	46	21	67	0	18	0
16. Me.	67	1	68	20	1	21	0	4	0
17. Md.	61	21	82	31	21	52	..	24	..
18. Mass.	540[19]	...	540	129	151	280	0	16	0
19. Minn.	209	162	371	63	88	151	0	18	..
20. Miss.	45[21]	0	45[21]	30	...	30	..	18	..
21. Mo.	119	198	317	114	173	287	41[22]	44	L[23]
22. Mont.	51	0	51	38	...	38	H[24]	9	..
23. Neb.	58	...	58	44	...	44	0	11	L[26]
24 N. J.	239	153	392	84	52	136	..	..	..
25. New Hamp.	29	7	36	17	9	26	..	11	..
26 N. Y.	588[27]	...	1072	413	F[28]	760	0	0	..
27 N. C.	29	17	46	17	2	19	0	14	0
28. N. Da.	17	7	24	15	...	22	..	7	..
29. Ohio	195	127	322	138	109	247	0	33	0
30. Okla.	275	125	400	94	102	196	0	27	0
31. Pa.	467	779	1246	308	441	749	2[30]	21	L[31]
32 Porto Rico	50	0	50	35	0	35	0	0	..
33. So. Car.	16	1	17	12	1	13	0	8	0
34. Vt.	46	...	...	19	4	...	..	2	..
35. Va.	246	70	316	86	29	115	0	19	L[32]
36. W. Va.	78	6	84	34	5	39	0	20	L[33]
37. Wis.	168[34]	142	310	97	90	187	0	10	0
38. Wyo.	21	0	21	17	0	17	0	0	0

* Responses to J, K, M and N are omitted from tabulation and explained in the following: J, all states answer yes except as follows: Minnesota—yes, in addition to special rules by the Board; Nebraska—not fully; New Jersey—no; Wyoming—considered. K, no laws are reported except by following: Alaska—Amendment Pharmacy Law requires that apprentice must have passed H. S. examination; Kentucky—every registered pharmacist pays a renewal fee and becomes a member of the state association, also those not required under federal law to execute bond for handling non-beverage alcohol are not required to execute state bond; Maryland—provision to admit those who took course at a night school or college, provided they have other qualifications; Montana—education prerequisites are up to legislative committee; New York—requirements for admission to a registered school of pharmacy increased after January 1, 1923, to at least 3 years H. S., or equivalent. M, no report except Colorado—prerequisite law was passed but was so amended as to be undesirable, and the Governor was encouraged to veto. Other reports simply answer that efforts were made, and all answer that lack of success was due to insufficient interest of druggists and members of the legislatures—this answers for "N" of the questionnaire.

GLEANINGS FROM THE REPLIES FROM THE STATE BOARDS.

State Boards reporting examined a total of 8962, considerably more than last year; 4600 (51%+) passed these Boards; 577 registered by reciprocity, about 20% less than last year; practically all of the Boards follow the N. A. B. P. plan.

Some Boards use the scheme indicated by foot note 7; there is possibility and probability that only about 40% pass the Board examinations.

The following three questions should be asked of Boards:

"Do you require candidates to be high school graduates?"

"Do you require candidates to be graduates of a recognized school of pharmacy?"

"Do you require candidates to be both high school and college graduates?"

According to the Christensen Chart, over which probably now a better showing could be made—13 Boards demand graduation from H. S. after Jan. 1, 1923; two after Jan. 1, 1924; one after Jan. 1, 1925. With two Boards H. S. graduation is optional. After Jan. 1, 1923, 15 Boards demand graduation from a college of pharmacy (some specify type of college) 2 other Boards will make the requirement effective after 1924 and another after 1925.

Thirteen Boards require citizenship of registered pharmacists; any group or groups handling poisons and bacterial products, as do registered pharmacists, should certainly be citizens of the United States. All Boards require registered pharmacists to be 21 years of age.

NOTES TO REFERENCES IN THE SCHEDULE OF RESPONSES, P. 1049, AND NOT ANNOUNCED IN ABOVE.

[1] Good help is easily obtainable from Pacific States on account of better salaries. [3] Six under 20-year rule, 4 through N. A. B. P. [5] Board rules effective 1923, have plan to increase treasury of State Association. [6] Examinations same for all, difference in grade required. [7] The number was really less than indicated by figure, because some who only obtained assistants' grade already had assistants' certificate. [8] Registration as Assistant Pharmacist only is granted to Ph.G., or to registrants of other states who do not care to go to expense and trouble N. A. B. P. plan; 3 of the 4 so registered were registered elsewhere, 1 was Ph.G. [11] H. S. 1923, College 1925. [12] One registered through medical license. [14] No authority for action, except to ask legislature for H. S. requirement. [15] 4 yr. H. S. or College Pharmacy. [17] July 1924 for registered pharmacist Board requires 2 yr. H. S. or equivalent and 2 yr. practical experience, and graduation from school or college member A. C. P. F. [19] For year ending, Nov. 30, 1921. [21] For year 1921. [22] 41 registered by college diplomas. [23] 4 yr. H. S., 1923. [24] 12 registered N. A. B. P. reciprocal. [26] A combination ruling allowing two years of university and two years of practical to equal 4 years of university. [27] In addition N. Y. Board examined (1921) 342 junior pharmacists and 142 druggists. [28] 347 juniors and druggists passed. [30] Two in business in 1887 at passage of original act. [31] 3 yr. H. S. for college entrance; 2 yr. for Assistant Pharmacist examination. [32] 4 yr. H. S. Pharmacy schools must demand this in order to have their graduates accepted for examination. Prerequisite effective April 1, 1922. [33] Graduation after Jan. 1, 1923. [34] April to April.

SECTION ON COMMERCIAL INTERESTS.

The first session of the Section on Commercial Interests was convened by Chairman Charles W. Holton, at 8:30 P.M., August 16. The first order of business was the reading of

THE CHAIRMAN'S ADDRESS.

In these days of discussions such as "What is the matter with pharmacy?" and similar topics, the questions as to whether there is such a thing as commercial pharmacy, whether professional and business activities can exist side by side and be practiced by the same individual, whether the American Pharmaceutical Association should have a Section on Commercial Interests, it is fitting that we should review the last decade or more and pause to consider whither we are going, or, perhaps, as others might say, drifting.

I have been actively engaged in retail pharmacy for not quite twenty years, and associated with it all my life. In the last twenty years marked changes have taken place, and if we look back another twenty years the changes are still more marked. We all know that the drug store has become more and more a small department store in place of the old apothecary shop of years gone by, where only drugs and chemicals were dispensed. What has been the cause of this change?

Has the pharmacist added more "side-lines" of necessity, because his very living was at stake? Have they been forced upon him by others, and not always to his liking? I think both of these reasons are responsible for the changed conditions, and the conditions are here to stay, whether we like them or not.

Necessity is a powerful factor anywhere, in any business, and the commercial activities of the present-day pharmacist, reaching out into "side-lines" not at all related to medicine, have been stimulated very largely by necessity. If a satisfactory livelihood can be made through the dispensing of medicines and the sale of sick-room supplies, well and good. Let anyone interested show us how it can be done and many of the "side-lines" will be relegated to the discard. And this applies not only to a few isolated and exceptional cases, doing business under unusual conditions, but to the great rank and file of retail drug stores situated throughout the length and breadth of the land.

The change has been wrought, also, by a process of evolution within pharmacy itself. Years ago we had no large manufacturing plants which carried on pharmaceutical operations on a large scale. Of necessity the pharmacist made all his own preparations, even to the manufacture of such a common article as compound cathartic pills. When the pharmacist can purchase a standard U. S. P. fluidextract of nux vomica for less than he can make it himself, will he buy it or make it? He will *buy* it. When he can purchase tincture of iodine made from denatured alcohol at a very much lower cost than he can manufacture it, will he buy it or make it? He will *buy* it. When physicians call for antitoxin and other biological products he must buy these articles also. And so since it is no longer feasible or practical for the retailer to manufacture many of his wants, he purchases these articles and less pharmacy is practiced in the store.

Medicine has advanced, and pharmacy too, but in the newer medicine there is very often less call for the products of the drug store. Surgery, too, has not added to the prescription business of the store. My boy became ill of cerebro-spinal meningitis. The physician diagnosed and began treatment by lumbar punctures. His agents were not of drug store manufacture. A serum made by such an institution as the Rockefeller Institute, for example, was called for. With the exception of such minor articles as cotton and gauze and a mouth wash, the case progressed without the need of the drug store. In my section of the country, at least, most of the biologicals are supplied by the city, by whom they are made or purchased, and the growing use of and advance in biological treatment of many diseases makes just that much less call for the old prescriptions which the drug store supplied.

It is true that the pharmacist may run a laboratory in connection with his store, and perform analyses for physicians, but I believe it is the testimony of those who have tried it that such an enterprise is not profitable, as in many cities this work is done by hospital laboratories at a nominal cost. On numerous occasions I have asked physicians whether they were writing more or less prescriptions than they did a decade ago, and the reply is invariably "less." One physician told me that ten drugs and chemicals would satisfactorily meet his entire wants.

The public, too, has demanded a greater assortment of merchandise in the drug store than was formerly the case. The ladies expect and demand all sorts of toilet articles, hair nets and bathing caps. The pharmacist may be loath to carry these articles in stock, but when his customers demand them, what is he to do? It would be poor business to send them away with their wants unfilled, especially when they are regular customers and give the store prescription business. And why should not the pharmacist avail himself of this avenue of profit? The attractive display of many of these "side-lines" often induces the sale of some of them to a customer who is waiting for a prescription. Except in rare cases is the pharmacist able to meet his expenses and lay up something for a rainy day from the profit on prescriptions and sick-room supplies?

These are some of the reasons why such marked changes have taken place in retail pharmacy and there are others that might be added.

What of the future? Will the tendency of the past continue? Shall we have a division into strictly professional pharmacies and drug stores, or has the peak of commercialism been reached and will present conditions continue, and general improvement of both professional and business operations result? The latter course, I think, will prevail.

That there is a need for real pharmacy no one will deny. That the practice of real pharmacy exclusively in a retail store will provide a satisfactory living is to be doubted. But that a combination of real pharmacy and the sale of numerous articles not related to healing can be

carried on in the same store is entirely possible. And the greater the specialization in the drug store into separate departments, conducted by competent individuals, the better service the public will receive in both these branches.

From whom does the cry come that pharmacy is going to the bow-wows? From the physician? I have not heard any expression of dissatisfaction from the physician with the character of pharmaceutical service he is receiving now. From the public? I have not heard any complaints from laymen that their prescriptions were not properly filled at any hour of the day or night. Both are receiving better pharmaceutical service than ever before. When your pharmacist calls for, fills, and delivers your prescriptions in short order, and the cost to you is perhaps a dollar, can you complain of poor service? I submit that this is excellent service and at a very moderate cost.

As time goes on and the drug store becomes more and more specialized as to its drug, prescription, candy and soda departments, each presided over by the most skilled help, the service of the store to the physician and the public will improve still more and the pharmacist will be assured of a reasonable competence. I doubt whether we shall see a separation into pharmacies and drug stores.

That educational requirements should be raised there is no doubt. And for work which requires the services of a registered pharmacist we should have the best-trained men possible. A prescription department under the control of skilled men, in a commercial pharmacy, will render the very best type of prescripton and drug service. Along with this expert prescription service we need expert commercial training. And the two are entirely compatible. To have *any* drug store requires capital, requires a knowledge of buying, of banking, of employment, and many other subjects, if the store is to succeed. And unless the store is a financial success there can *be* no store at all, not even a prescription counter over which medicines can be dispensed. So that while we give a high place to the practice of real pharmacy, we must give a higher place than we have been giving to the considerations of every-day business, for without the latter the former cannot exist.

These are the reasons, then, why we advocate a broad knowledge of business along with the highest type of pharmaceutical education. That a man should not pursue his vocation with the mere thought of personal gain is self-understood. His thoughts and deeds should rise above the confines of his bank account. His service to humanity should be of paramount importance. He should be interested in the philanthropic movements of the day. Very often the pharmacist confines his efforts too closely to his own business, and lacks the broader viewpoint. But in order to take an altruistic interest in the things that count in life, he must feel reasonably secure in his mind about the welfare and creature comforts of his family. To do this he must put his business on a paying basis. In short, he must be posted in modern methods of carrying on his business. As for the present pharmacy graduate, a very large part of his time will necessarily be devoted to commercial considerations. Why not give him adequate equipment for this work?

We make no apologies for a Section on Commercial Interests in the A. Ph. A. If in the reorganization plan, it is contemplated to make the organization one which will consider and be interested in scientific subjects only, there is no quarrel, but if it is to be a broad organization, contemplating all phases of pharmacy, then there is a place, and a very large place, for a section devoted to commercial interests. And may the time never come when this old organization of pharmacy will not be interested in all that pertains to the calling, whether it be manufacturer, jobber, or retailer, in all their many and varied activities.

The address was referred to the Publication Committee.

The next subject of the program was an address by Dr. Jacob Diner on "Shall the Ownership of Pharmacies Be Confined Exclusively to Registered Pharmacists?" It follows:

SHALL THE OWNERSHIP OF PHARMACIES BE CONFINED EXCLUSIVELY TO REGISTERED PHARMACISTS?

The paper as indicated in the program is in the form of a question. In my opinion it should have an exclamation sign, without any question mark after the title of the paper—not "Shall," but an exclamation point. It is no question in the minds of anyone, whether it be a pharmacist, physician or merely a general consumer of drugs or medicinal products. There can be no question as to who shall be responsible for the drugs dispensed in a pharmacy. However, the law in

practically every state, as far as I have been able to find out, permits anyone to own and operate, but not to conduct a pharmacy. The conduct or the management of a pharmacy is generally restricted to a licensed man, although we have in some states a so-called licensed assistant who is permitted by law to conduct such a store.

Now, what are the reasons why only a pharmacist, a licensed pharmacist, shall be permitted to own a pharmacy? It has been advanced as an argument against this proposition, that as long as a licensed man is in charge of a pharmacy, and the present law is complied with, the public is sufficiently safeguarded. At first glance that may appear to be correct. The head of a large dry goods store is not necessarily an expert on carpets, silks, laces, etc. He can engage experts for these particular departments, to conduct them for the benefit of his establishment. Isn't that equally true with reference to pharmacy?

To begin with, I do not believe that there is anyone here who is ready to concede that pharmacy is exclusively a commercial enterprise. It has been from time immemorial classified among the professions.

Secondly, if the head of a pharmaceutical establishment (I am speaking now of a retail pharmacy) is not capable of judging, not only of the quality of the drugs and articles which are purchased and dispensed, but equally so unable to judge of the qualifications of the man who dispenses them, then a serious condition prevails—a condition in which the life and health of the people are jeopardized, and it becomes a serious menace to society at large. That is one, and I believe a very important, argument in favor of confining the ownership of a pharmacy to pharmacists only.

There is another factor to be considered in this matter. If a man is not a qualified pharmacist, he is not interested in it. He is not even conversant with the ideals of pharmacy. He is interested primarily, principally, and I might say, exclusively, in the financial returns which this business enterprise gives him, and it stands to reason that he is apt to and most likely will sacrifice quality to price. He will not encourage the purchase of the highest quality of drugs, but, on the contrary, will be guided by price largely, rather than by quality. That is a second argument in favor of ownership of pharmacies to be confined exclusively to registered pharmacists.

But there is another point, and a more serious one. In practically all of the states, the Boards of Pharmacy, to the best of their ability, are endeavoring to see that drugs dispensed are of standard strength. In all of the states certain penalties are imposed for violation of the Pure Food and Drugs Act of the state, or the Pharmacy Law, or whatever code governs the dispensing of prescriptions and the sale of drugs. These penalties are usually, first, of a monetary character. If a fine is imposed it is usually collected, but beyond that most of the Boards have the power to either recommend to the licensing body that a license of a repeated violator be revoked, or they have the power themselves to revoke such a license. What, then, is the condition in the case of a pharmacist owning a pharmacy, and a non-pharmacist owning a pharmacy? Take, for instance, Mr. A—who has prepared himself by going through the necessary preliminary requirements, we will say, taken a course in a recognized school of pharmacy, graduated therefrom, and successfully passed the State Board examination in his state—either personally, or through his clerk, has become guilty of repeated violations of the Pharmacy Law in his state. He has paid the requisite number of fines, and he now is cited to appear before that Board to show cause why his license should not be revoked, and it may be revoked if the Board sees fit. In the case of Mr. B, who has given neither time nor study for the privilege of conducting such a drug store, the story is different. He has made sales of drugs of inferior quality. He has been fined, as principal, penalized by monetary fines, has paid them, but can he be cited before that Board to show cause why his license shall not be revoked? By no means. You cannot revoke anything that a man does not have. So Mr. B can go on operating his drug store, with a registered asssistant or with an unlicensed clerk, if he sees fit; he can dispense prescriptions of an inferior quality, he can go on violating the law as often as he wants to, and all he can be called upon to do is to pay an occasional fine of anywhere from $5 to $50 for such violation. Is that fair? Is that justice to either the pharmacist or still more to the public at large whose life and whose health are endangered daily, if not hourly, by such a non-pharmacist owning a pharmacy?

I am not speaking on this subject from the purely selfish viewpoint of pharmacy at all. I will admit, and probably there are many here who will admit, that pharmacy will never merit the consideration to which it is entitled, until we have eliminated the non-pharmacist owner from the privilege and the right to conduct a pharmacy.

For these reasons, and, furthermore, for the reason which has been previously stated—that this subject has not been given any consideration—we have advocated, in the state of New York, the restriction of the ownership of a pharmacy to a pharmacist only.

What has the Volstead Act done to pharmacy? We all know that the temptations were too strong, even for men who have had a high standing in the pharmaceutical body of their city or state. Certainly many ex-saloonkeepers, politicians and others saw a fruitful field in that liquor permit, and they engaged promptly in the profession of pharmacy. They emphasized the profession very strongly. Can we expect that a saloonkeeper (he may have been a mighty good saloonkeeper) would take a great pride in his pharmacy and in the professional side thereof? Certainly not. There is another menace in the non-pharmacist owner on account of this liquor proposition. That menace, I will admit, is a commercial one, but we do not know that to maintain ideals it is much easier to do so if we are financially free to do as we would like. It is a well-established fact that it is easier for the rich man to be good than it is for the poor man, and certainly for the very poor, and the man who has no financial care will not take the chances with the law that would the man who is in financial need or in financial distress.

Now, what has been the result of these men going into pharmacy? They know that it is necessary to show a certain amount of actual drug business in order to obtain or retain the alcohol permits, or to increase the amount of alcohol which they are permitted to withdraw. That leads them to an artificial forcing of the turnover of drugs and preparations sold in a drug store, and druggists all over the country have been complaining that it is menacing the existence of the legitimate pharmacist. We have made a study of goods sold, not at cost price but frequently at half the wholesale cost, minus all of the discounts, including the cash discount, in order to swell the turnover of the drug end and permit the handling of a corresponding amount of alcohol.

You may say that it is not a menace to the public. Perhaps it isn't. In my opinion it is, because the man who can scientifically and who will conscientiously serve the public is put out of business.

So the New York State Pharmaceutical Association instructed its Legislative Committee to investigate the matter of the legality first, and, if found within the law, to draw up and present a bill limiting pharmacy ownership to pharmacists only. I shall not go into all the details of the proceedings. Suffice it to say that the legality of such a law was established, but in drawing up the bill we had to consider many facts.

I am bringing these points out for you, with a hope that when you men go back to your states you can agitate similar legislation, and so that you may know some of the points and difficulties with which we had to contend and consider, in order to save you time and disappointment. The first and most serious problem that was presented to us was, "What are you going to do with the present chain stores?" The answer, of course, is obvious. It is a good business proposition to consider the chain stores in that light, because, instead of opposition from them, as we would surely encounter, we would have their coöperation. It is also illegal to make legislation retroactive.

In order, however, to prevent a sudden influx of corporations, or a sudden increase of new corporations, we added to that bill that corporations which are now in existence and licensed to do business in the state or those which have filed application prior to the introduction of this bill shall be permitted to continue uninterrupted. That prevented the opposition of the old corporations, it obviated the sudden rush of new incorporations and did away with that problem.

The next question that naturally arose was, "What will you do with a pharmacy whose owner dies?" That, of course, we could readily solve. European countries, which have worked under similar laws, permit the widow or estate of the deceased pharmacist to carry on that business under the responsible head of a licensed pharmacist, with a proviso that this licensed pharmacist now becomes personally responsible, just as if he were the owner. At present your licensed pharmacist can commit all the violations in the world as long as they are not criminal, and notwithstanding that the State Board of Pharmacy has licensed that clerk it generally holds the owner responsible, although the Board may cite and penalize the licensed clerk. But under the new law the manager becomes responsible to the Board of Pharmacy and the law, and the infractions of the law are laid against him, just the same as if he were the pharmacy owner. That did away with all the expected obstacles.

The Bill was introduced both in the Assembly and in the State Senate. We were willing to take our chances with those bills on the floor. We heard no opposition to that bill, and we thought ourselves wise birds in not asking for a hearing before the House Committee, fearing that if we asked for a hearing, we would bring out all the opposition that we did not want and a little bit more.

On a certain Monday night, at midnight, the term of the committee to report on bills of the Assembly Committee expired, and just a few minutes before that we got wind that they had not even taken up that bill in the Assembly Committee. The Chairman of the Legislative Committee of the state got busy at once, by telephoning and telegraphing, and a hearing was granted him and two other men of the Legislative Committee a little after twelve, midnight, of that same day, and they sat there until two o'clock in the morning, but when they got all through they were informed that it wasn't within their power to report that bill.

So we thought we still had another chance, and that was the Senate Committee, as they were still acting, and then we could have it taken down for ratification in the Assembly. We had a hearing before the Senate Health Committee, and we succeeded in convincing the state senators that we had a just and fair cause on behalf of the public. In fact, we interested them to such an extent that one of the senators got busy and dug up the constitutional law of the state, which clearly defines the powers of corporations and prohibits the practice of any profession by corporations; specifically mentioned there were medicine and law. They conceded that pharmacy was a recognized profession. They reported that bill favorably, and it was passed in the Senate. In the meantime we began to get some inside information as to the action of the Assembly Committee. We found that some of our legislators in the Assembly and also some in the Senate were vitally interested in drug stores, were doing a lucrative business, and those not interested financially intended to become so soon, and that was the reason the bill was handled so nicely and chloroformed so gently.

Our Assembly men did not want the bill to come out on the floor. They did not want it to go on record, and so powerful political influences were brought to bear upon the Chairman of the Rules Committee and it died a death of inanition in that Rules Committee. It is needless to say that we are going to get very, very busy promptly. The bill has been reviewed, the weakest points ironed out, and it will be introduced at the very next session of the Legislature.

What I want to bring out particularly is this: That this measure, when you introduce it, must be made a measure of public welfare for the interest of the people. It would not matter one iota to pharmacy if it did not endanger the public welfare. We would not agitate as strongly as we have, except for the fact that the basic reasons for the passage of such a bill are and must be the safeguarding of the public health.

Now, in order to get any bill of that kind through, we have learned a lot as to what must be done. It is necessary to get the newspapers, the daily papers, interested in that. To accomplish this, we have a Publicity Committee of which Mr. Clyde Eddy is the chairman, and we have appropriated such funds as are necessary to carry on this work. We want to establish the fact in the people's minds first, that when they go into a drug store they do not know whether that drug store is a legitimate pharmacy. We want them to know that if that bill goes through, they will feel safe when they see the sign "drug store," or "pharmacy" over a door or a window. They will feel just as safe about that as, in the state of New York to-day, when they see the sign Dr. Jones on a window, they know that that man is a legally qualified physician, a man duly empowered and qualified to practice the art and science of medicine. We want them to know that same thing about pharmacy. It is for the protection of the public only.

There is another thing: Whenever you introduce a bill of that kind go to see your candidates for office in the fall election, and find out their attitude, whether they are going to support it, or whether they are going into the profession of pharmacy, not for the benefit of humanity, not for the protection of the public, but for the mere sake of making money, illegitimately if necessary. If most states will introduce those kinds of bills, we will soon obtain laws of that kind. If the American Pharmaceutical Association will have accomplished nothing more than to stimulate the introduction of passing such a bill, limiting ownership of a pharmacy to registered pharmacists only, it will have established a monument which neither time nor vicissitude can ever tear down.

DISCUSSION.

J. H. Beal asked if there was any provision made for supplying drugs in communities where there is no registered pharmacist.

Dr. Diner replied that, in the pharmacy law of the state of New York, such contingency is provided for by what is known as a storekeeper's license. The storekeeper's license is granted only where there is no drug store within an area of six miles. That dealer may handle remedial drugs in packages when put up by a pharmacist, and bearing the label of the licensed pharmacist who has put them up, not necessarily limiting them to innocuous drugs. The seller to the permit holder is made responsible to see that the storekeeper is familiar with the dangers of the drugs and that he calls the attention of the purchaser to such things.

In reply to the question "What will happen to the men in business, not a corporation, and still own drug stores operated by licensed pharmacists?"—Dr. Diner answered that the law will make the manager responsible equally, as if actually the owner.

L. L. Walton said "The Doctor stated that the legality of the bill was established and he made the reference to a senator referring to the Constitution of the State of New York, in which it was found that no license could be granted to practice medicine or dentistry or any other profession to a corporation. Is that correct?"

In reply to other questions Dr. Diner stated that by research made by counsel and referring it to the Attorney-General of the state, it was established that pharmacy could be considered as one of the professions. He said further: "Our pharmacy law reads, first, 'Pharmacy.' A pharmacy is a place where drugs are sold, dispensed or compounded, and it goes on to say a pharmacy may not be conducted or operated by any one who has not complied with the following, and sets down the qualifications as to preliminary education, license, etc. Then it is negatived by a little clause later on introduced, because at that time there was considerable opposition in the rural districts, and it was added, 'However, this shall not apply to the ownership of a pharmacy.' If it hadn't been for those few words, we would have a law in the state that would have given us all the power that we wanted. The compromise at that time has been the cause of all that disturbance.

"You may say before your Legislature that an unlicensed pharmacist is apt to be careless about the kind of help he employs and the kind of drugs or preparations dispensed. On two separate occasions an unlicensed man was found to be in charge of a drug store. On several other occasions the prescription contained insufficient quantities of drugs prescribed and in some instances substitution was practiced."

L. L. Walton asked whether in the opinion of the Attorney-General of the state of New York the bill which was introduced provided for proper application of the police power of the state of New York, and if the bill had been passed whether the Attorney-General would have recommended that it be signed?

Dr. Diner replied "yes," to the first part of the question and that he had understood the Governor would then sign the bill.

The question of restraint of trade was brought up. Dr. Diner in reply said: "The greatest difficulty we had with that bill was this: All the pharmacists knew about the legality and illegality of the bill. I might also say that my information from Europe after the war was that the old laws were still in effect. I worked under those laws, and I know that no one could own a pharmacy in Germany, unless he was a pharmacist, and after the owner's death, the only ownership was the widow or the estate of the deceased. In that case the manager was made responsible, not only for his actions, but for the actions of his employees as well.

"We are not losing any sleep about what the higher courts will do, because, after all, common sense has been a very marked qualification of our judicial system, and a matter of protection to the public.

"As far as it being a restraint of trade, you don't want to forget that anybody can sell any articles that are not drugs, and we do not try to limit such sales, but when actual drugs are sold or prescriptions dispensed, then the place of business becomes a pharmacy."

Secretary H. C. Christensen of the National Association of Boards of Pharmacy said: "It seems to me that there is every reason in the world to believe that such a law would be legal. It has been ruled that a corporation cannot practice medicine, even though physicians were hired to take charge of that corporation. The corporation must state definitely 'Doctor John

Smith, M.D.,' or a combination of M.D.'s, and the same with dentistry. It seems very reasonable to me that the welfare of the public is involved as much and more in pharmacy, than in any of the other professions.

"A thorough study should be made of the subject. Quite a number of inquiries have come into our office, as to whether there was a movement on foot to bring about the passage of such laws in the different states. I have had a brief prepared by our attorney in which he outlines the conditions and possibilities of such legislation, much along the same line as presented by Dr. Diner, claiming that it is not only legally possible, but very likely that such laws will be enacted." L. L. Walton stated that recently in the state of Pennsylvania a charter was refused for a dental corporation.

The following papers were read and discussed: (They are printed in September JOURNAL A. PH. A., pp. 807 and 808.) "Further Chain Store Figures," by Clyde L. Eddy. "Commercial Pharmacy or Business Administration," by Robert P. Fischelis.

The first session of the Section on Commercial Interests was then adjourned.

SECOND SESSION.

The second session of the Section on Commercial Interests was convened by Chairman Charles W. Holton, at 9:30 A.M., August 18.

The first subject of the program was an address by H. S. Noel on "The Great Need for Better Commercial Training." This is printed in October issue of the JOURNAL, pp. 802–806.

In complimenting the speaker Dr. Diner pointed out the need of business training both in buying and selling and proper stock-taking; that the overhead is frequently not rightly determined, or the cost of preparations manufactured in the pharmacy.

Chairman Holton stated that he had profited by many suggestions and ideas presented in Association papers and discussions. In his opinion, it was necessary to lay more stress on the conduct of business for profit; the retail pharmacists should in larger numbers interest themselves in this Section and discuss their every-day problems.

William Gray contended that every druggist owed this Association support, that here was an opportunity for a postgraduate course in pharmacy.

H. L. Thompson said that it was impossible to give much business training in a 2-year course; in the institution with which he is associated provision is made for a 4-year course; students select the course best suited for their needs—based on what line of work they will engage in after leaving the school.

W. C. Anderson commended the paper by Mr. Noel; there were two points he wanted to make—that most pharmacists need more commercial training and this training should be given in schools of pharmacy. While the 2-year course did not permit of a thorough business training for students, they could be drilled in business conduct, buying, selling, bookkeeping, etc. He agreed with Dr. Diner that observance of the ethics of business and of the profession is essential to success. The man who has the proper commercial understanding which will enable him to make a commercial success can uphold the ethics of the profession. Those who bring disgrace on the profession are usually those who are unsuccessful in business or in the profession. The graduates in pharmacy should not only have professional training but be trained in business principles so that they can make a business success.

M. A. Jones expressed his interest in the figures which indicated that the large percentage of failures among retail druggists was due to lack of business knowledge. He hoped that Mr. Noel would study the business courses in pharmacy schools further, and report his findings.

A rising vote of thanks was tendered Mr. Noel. He stated that he would be glad to continue his studies where he left off in this paper, and present further facts at another meeting of the Association.

Fred W. Ames read a paper on "Prescription Pricing." It was discussed and referred to the Publication Committee.

The following papers were read by title and referred:

"Brush Goods—Buying Quality, etc.," by Arthur H. Davis.

"What Is the Matter with Pharmacy?" by Ambrose Hunsberger.

"Coöperating in Pharmacy," by Henry B. Smith.

The Committee on Nominations presented the names of the following for officers of the Section:

Chairman, Walter M. Chase, Detroit, Mich. *Secretary*, Henry B. Smith, Brooklyn, N. Y. *Associates:* E. R. Serles, Brookings, S. Dak.; A. B. Nichols, Philadelphia, Pa.; Theodore D. Wetterstroem, Columbus, Ohio. Under instructions, by motion, F. W. Ames, acting as secretary, cast a ballot for the nominees and they were declared elected and duly installed. The final session of the Section on Commercial Interests was then adjourned.

SECTION ON HISTORICAL PHARMACY.

The first session of the Section on Historical Pharmacy was convened at 9:00 P.M., August 16, by Chairman C. P. Wimmer. He announced that with the consent of the members the order of business would be changed, leaving the officers' reports to the second session.

The first contribution of the evening's program was a paper by Hugo Kantrowitz on "The Oldest Pharmaceutical Organization in America," in which he described the activities of the New York German-American Apothecaries Society. The compiler and author presented the Association with an album containing pictures of events, invitations, and prints of many members. This historical paper, in presenting an account of the activities of the Society, contributes largely to the history of the American Pharmaceutical Association, to which the former is closely linked.

The next number on the program was an illustrated lecture by H. M. Whelpley. While most of the pictures spoke for themselves, and were frequently applauded, the lecturer enlarged on points of interest, which added zest and information. The speaker brought out interesting incidents of past meetings, and unconventional snapshots of well-known members were shown; many of the latter had passed onward. Mrs. Whelpley, as usual, contributed largely in preparing the beautifully colored lantern slides. A vote of thanks was passed to both Mr. and Mrs. Whelpley, and a promise was made by them of further contributions. A selection of the slides is to be presented at a later day to the Association, when housed in its own building.

James H. Beal presented "An Appreciation, Paying Tribute to the Late S. A. D. Sheppard." In the memoir an account of the activities of the latter is recorded; it is printed in the September number of the JOURNAL, p. 659.

An extremely interesting and informative illustrated lecture was given by H. W. Felter of Cincinnati, entitled "The Backgrounds, Foundations and Founders of the American Materia Medica." Many of the illustrations shown and data cited were taken from a work in preparation by Dr. Felter. The information contained in this lecture may, in a measure, be estimated; those present considered themselves fortunate in having the opportunity of listening to the author and seeing pictures on the screen that vividly portrayed the backgrounds, foundations and founders of American Materia Medica. A rising vote of thanks was tendered Dr. Felter, and the session was adjourned at 1:00 A.M.

SECOND SESSION.

The second session of the Section on Historical Pharmacy was convened at 2:00 P.M., August 17, by Chairman C. P. Wimmer; his address follows:

ADDRESS OF THE CHAIRMAN.

With this meeting the Historical Section enters into the twentieth year of its useful and interesting activities. The amount of work done and the kind of work accomplished during the period of its existence can hardly be properly estimated. There are in the possession of our historian numbers of valuable papers and records, sketches, autobiographies, papers on subjects of historic interest, of every kind and nature. They are stored away, sleeping peacefully, but awaiting like the charmed princess the deft hand of him who will bring them to life and usefulness. Numbers of papers are annually submitted at these meetings. Some are read and published, some not read and not published, but all of them are placed into our archives to be available should a demand arise. And demands arise more frequently than one might think. The number of people interested in the history of pharmacy is ever on the increase. Hardly an issue of the pharmaceutical periodicals appears in which an article of historic interest cannot be found. It seems to me that the time has come when some one should undertake to write a history of American Pharmacy. There is plenty of material to draw from, and the archives of our Association would be of invaluable assistance. Few members, however, realize that our store of historic material is rich, or know that all of the material submitted is kept on hand. To bring this forcibly to their attention I suggest that the historian be requested to prepare an index of all historical material now in his possession, and that this index be printed in the JOURNAL and be avail-

able in reprint form. The preparation of this index would, no doubt, entail a considerable amount of work, but I have no doubt that the Association would grant such clerical and financial help as might be required. I shall be glad to entertain a suitable motion bringing this matter to the attention of the council.

The program prepared for this year is as large and promising as it was last year. The chairman wishes to express his thanks and appreciation to all contributors. The work of the officers has, indeed, been made easy and enjoyable by the hearty support they have received.

The untimely death of Arthur W. Linton, who was elected secretary of this Section last year to succeed himself, has been a great shock to all of us. Mr. Linton was a man of high ideals, who took an active interest in many branches of pharmacy. His contributions to historical pharmacy are numerous and of considerable interest. The words used by Professor Johnson in Mr. Linton's obituary notice seem to me so appropriate that I will repeat them here: "His death brings sadness to all who knew him, but his memory will live in the hearts of his associates."

Clyde L. Eddy was elected to the secretaryship of this Section to succeed Mr. Linton. To Mr. Eddy's efficiency and hearty coöperation much of the success of our program is due, and full acknowledgment of that fact, as well as of the assistance rendered by our historian, Mr. Eberle, is hereby gladly and thankfully made.

It was moved, seconded and carried that the report be received and the recommendations were approved.

REPORT OF THE HISTORIAN.

The growing interest in this Section is evidenced by the program, and also its general value—for no Section considers matters relating to pharmacy from more viewpoints. President Garfield said: "History is constantly repeating itself, making only such changes of program as the growth of nations and centuries requires." Cicero said: "Not to know what has been transacted in former times is to continue always a child. If no use is made of the labors of past ages, the world must remain always in the infancy of knowledge." General application of quotations can readily be made and specifically each member will apply them according to the teachings of his or her experience.

From earliest times—when trade between nations was first entered into—drugs ranked high as important articles of commerce. They were material considerations in trade routes, and changes of these were closely associated with the rise and fall of empires. Even in more recent periods drugs have brought about enmity between nations or developed greater friendships. Trade marked the character of nations—making some of them strong leaders and others have been held back, and dominated. Nations have been brought together to discuss the evil effects of drugs—how best to limit and how best to extend the industries concerned therewith. The geography and government of countries have been almost recast under the influences or by the influences exerted through the industrial or commercial value of drugs. Impossibilities have become actualities. It is unnecessary to be specific in these references because they can be made to apply differently and at different points and periods in history. It is unnecessary to go back to the times when the cinchona made sections habitable where civilization was impeded by centuries of darkness, and with it consider the progress that has taken place. Here, at this convention, we will hear from one of our members who on a number of occasions traveled through areas of, until then, undiscovered country, or at least made possible further utilization of valuable materia medica of the countries south of the equator. The expedition of which Dr. H. H. Rusby was the director was viewed with favor in educational and scientific circles in South America, and a Peruvian newspaper describing Dr. Rusby and these researches refers to his exploits as "the gallantry of a man of science." But this undertaking has done more, it has brought pharmacists into closer relation with other men of science, the industries and the public. Let us not overlook its significance. It will prove to be one of the big events recorded in the history of science, commerce and industry.

One of the papers of the program relates to Colonel May's Journey to the Ohio Country and throws additional light on the way ginseng traffic was then carried on. Its importance is brought out by the author who states that ginseng was used for coin, and fluctuation in market value might have been the making or undoing of a merchant. A further important fact is referred to in that the first ship leaving an American port after the establishment of the United States carried a quantity of ginseng which was exchanged for tea and silk; thus trade was established which

has continued. Among the plants John Bartram collected for Sir Hans Sloane was ginseng. The former was a friend of Peter Collinson, the Quaker botanist whose name has been memorialized in the Collinsonias. Through him John Bartram was appointed botanist and naturalist for the exploring of the provinces

While the purpose of bringing out these latter points is to emphasize the value of the study of historical pharmacy in one direction—and there are many, as has already been noted—it is also for the purpose of making reference to John Bartram's gardens and home which still exist though much neglected. In localities where points of historical interest are many it is almost impossible to preserve and maintain all of them. I will not attempt to say to what extent we as pharmacists and botanists throughout the country should be interested in this subject; however, it is a source of regret that this link of the past with the present should go to ruin. There are many things contained in the house and about the gardens which have historical value and could readily be sold for relatively large sums. As it is, the grounds and buildings are going to ruin and as time goes on articles that have been viewed with interest disappear.

John Bartram was not a pharmacist, but his knowledge of medicinal plants brought him into close relation with apothecaries and doctors who had a part in the development of the materia medica of that period. The paper on the first American Pharmacopoeia brings us into closer relationship with the apothecaries of the formation period of our Government. Soon thereafter the Philadelphia Dispensary, which last month closed its doors, was established. This institution not only brings us in touch with early apothecaries such as Christopher Marshall, but again we find that John Bartram also was a patron and that antecedents of one of our well-known ex-presidents, Edward Parrish, were among the founders. In the regulations which obtained throughout the eventful history of this institution the physician and apothecary were considered as co-workers, if not equally important. "They" governs the phraseology. "They are allowed to absent themselves the first day of the week provided 'both' are never absent at the same time;" "They are admonished to be kind and courteous," etc.

Pharmacy's immediate claim to Louis Pasteur is largely through work which brought him in touch with French pharmacists and pharmaceutical institutions; pharmacy, however, owes much to him. The centenary of Pasteur's birth will be celebrated this fall at the International Exposition of Hygiene in Strasbourg. It was in this city that the great scientist began his career; a monument will be erected to him.

So we might continue without great difficulty to bring out from the records historical events that have had much to do in shaping pharmacy.

The transactions of the 1872 Convention of the American Pharmaceutical Association were participated in by some of those living to-day and present at this meeting. Thos. D. McElhenie will give some account of these proceedings and of the members who made pharmaceutical history in 1872. Dr. Enno Sander was the presiding officer of the Convention. The pharmaceutical events of 1822 and chemical chronology are subjects of papers on the program, and many of these events and individuals would serve as subjects for interesting papers.

The convening of the International Pharmaceutical Federation may be regarded in the light of pharmaceutical history for it has been nearly ten years since the prior convention; a brief account is given in the June issue of the JOURNAL, p. 493.

The International Congress of the History of Medicine met in London during July; those engaged in related lines are eligible to membership. The editor of the *Pharmaceutical Journal*, Mr. J. P. Gilmour, read a paper on "British Pharmacy;" the entertainment program included functions at Apothecaries' Hall and at the Wellcome Historical Museum. Mr. Henry S. Wellcome has been a member of our Association since 1875.

Nothing of great historical value has come to us during the year. The editor continues to clip from various publications items that have a bearing on pharmacy; a record of these cover many subjects, and an alphabetical list is filed each year. We have also received 25 photographs of members; nearly half of them were accompanied by brief sketches. All members are again invited and respectfully asked to send in a photograph and a brief sketch, if they have not already done so. The future will have need for them in one way or another. The photo in July issue of Dr. Enno Sander is from the album of Professor Maisch, donated last year by his daughter, Miss Margaret Maisch, and she is present at this meeting.

Among those who have gone away from us since last we met are the following: Richard M. Shoemaker, Seward W. Williams, William O. Blanding, Frank R. Partridge, William Pendleton De Forest, Charles William Benfield, W. D. White, W. Arthur Skillern, Prof. Arthur Linton, Dr. Otto A. Wall, Charles I. Hood, Azor Thurston, Simon Newton Jones, William Bryant Cheatham, Frank A. Southard, Otto George Hottinger, Ira Benton Clark, Henry George Duerfeldt, Randolph P. Mullins, George Gustiniani Muth, William H. Sigler, B. O. Wilson, William Marks, H. J. Stolle, D. A. Neu, J. F. Whitley, Adolph Hoenny, James E. Brennan, George C. Frye, Gustavus Balser, Harry O. Mayer, A. J. Jehlik, William A. Scheddell, J. A. Belanger, E. T. Colton, Carl E. Weise, W. L. Cummings, Ambrose C. Snyder, Benjamin A. Wilson.

While George Robert White, Boston philanthropist, was not a member of the American Pharmaceutical Association, the splendid example he set for others to emulate should be made a matter of record here. A sketch is printed in the March number of the JOURNAL, p. 227.

As far as it is possible notices and also sketches of the deceased are printed in the JOURNAL. Workers in all of the pharmaceutical activities are represented in the memorial list; some became leaders in affairs, others were glad to follow and lend their aid in the advancement of pharmacy according to their opportunities. Some were members of the Association only for a few years, others had passed the half-century mark—Ambrose C. Snyder, Benjamin O. Wilson, Charles I. Hood and Simon N. Jones. One died in office as a state association president—W. Arthur Skillern, others had held the office, the greater number had been active in state association work. Seward W. Williams was associated in an editorial capacity with pharmaceutical publications in his earlier years and, later, chemist for a longer period. He was a frequent contributor to the proceedings of the Association. Dr. Otto A. Wall presided over the 1910 Pharmacopoeial Convention, and during the greater part of his life was a member of the faculty of the St. Louis College of Pharmacy. A loss that has been felt keenly by this Section is that occasioned by the death of Prof. Arthur Wilson Linton. He was a student and year by year became more valuable as an educator, and exerted greater influence in American Pharmacy. He was secretary of this Section. His contributions exhibited his ability as a writer, and a number of these papers were reprinted in part in the foremost magazines; particular reference is made to the comprehensive paper read at the last San Francisco meeting on the voyages of the 16th and 17th centuries in their relation to drugs, spices and dyestuffs.

Among the most recent deaths of which we have been given notice is that of Prof. Frederick P. Tuthill of the Brooklyn College of Pharmacy, who joined the Association in 1899; also that of the well-known Japanese chemist, Dr. Jokichi Takamine, who joined the Association in 1898. Sketches of both are printed in the August number of the JOURNAL.

In a communication a personal friend of the latter, Hon. K. Kumasaki, Consul General of Japan in New York, states: "The loss of Dr. Jokichi Takamine means the loss of a most eminent citizen of Japan, a loyal friend of America, and incidentally one of the oldest Japanese residents of New York," and he concludes by saying that, "in his business undertakings Dr. Takamine always sought the coöperation of Americans, as he firmly believed that such joint American-Japanese enterprises were conducive to bettering the relations between the two countries." Here we see how the history of pharmaceutical science blends with the history of nations.

The mention made year after year that a headquarters for the American Pharmaceutical Association is coming, is nearer a realization; at this writing over $5,000.00 has been subscribed for the home. When this purpose comes to accomplishment the room for Historical Pharmacy will be a most interesting part of the structure, and many of the records that are largely historical which now are lost to pharmacy will be preserved. Fortunately much material has been preserved in the colleges, but it requires no great stretch of imagination or stimulated thought to realize that there has been a loss because there was no depository for such material under the direct control of pharmacists. Let us promote the growth of the A. Ph. A. Headquarters Building Fund.

Last year the historian made the request that as far as possible pharmaceutical publications preserve matter that can, after the A. Ph. A. building is completed, be properly taken care of; this suggestion is now extended also to the pharmaceutical industries and the educational institutions of pharmacy. The growing interest in this Section evidences the possibilities; in the writer's opinion more intensive coöperation will be offered from all the sources mentioned

when the depository is available. In the meantime he also believes that they will accept the invitation because history and research are of growing interest.

Respectfully submitted,

(Signed) E. G. EBERLE.

On motion, duly seconded and carried, the report was received and recommendations concurred in. The officers of the Section were requested to prepare a memorial relating to the late secretary, A. W. Linton, to be incorporated in the minutes of this Section. (See also addresses of Chairman and Historian.) It follows:

In Memory of Arthur Wilson Linton.

The Section on Historical Pharmacy suffered the loss of one of its most active workers in the passing of Secretary Arthur W. Linton, January 26, 1922. The deceased was born in Bunker Hill, Illinois, May 1878; here he received his earlier education and also his drug store training, prior to entering Highland Park College, from which institution he graduated in 1902. In 1906 he received the degree of Bachelor of Science from the University of Michigan, and was awarded the Frederick Stearns Fellowship. He was professor of pharmacy at Valparaiso University from 1909 to 1913 and during the succeeding years associate professor of pharmacy in the University of Washington where he earned his Master of Science degree, in 1915.

Professor Linton was secretary of the Washington State Pharmaceutical Association at the time of his death and had served in that capacity from 1915–1917. He conducted a page "Prescription Difficulties" in the *Pacific Drug Review*. His contributions to the Section on Historical Pharmacy bear evidence of his interest in the subject and qualification in historical research.

In honoring the memory of our lamented member, the late Secretary of the Section on Historical Pharmacy, Arthur Wilson Linton, we voice the sentiments of tribute by his colleague, Prof. C. W. Johnson.* In his passing American pharmacy has lost one of its brightest minds and an inspiring teacher. We express our sympathy to his widow and other members of the immediate family, and share in the loss of a loyal member of the American Pharmaceutical Association.

For the Section on Historical Pharmacy, A. Ph. A.

C. P. WIMMER, *Chairman*,
CLYDE L. EDDY, *Secretary*,
E. G. EBERLE, *Historian*.

The following papers were read by title and referred to the Publication Committee:

"Biographical Sketch of Emile Bourquelot," and "Lycion or Lyceum of the Ancients, by William H. Gano.

"Events of 1822," and "Chemical Chronology, " by Otto Raubenheimer.

"Contemporary History, 1921," by Clyde L. Eddy.

"Historical Fragment: Colonel May's Journey to the Ohio Country, 1788–1789;" "Gleanings from Diary of Samuel Pepys;" "History of the Apothecary Shop: A Bibliography—The Apothecary Shop of Castle Issogne;" "A Fifteenth Century Boutique;" and "Gleanings from Humbolt's Reise durch die Aequinoctial—gegend Amerika's," by Edward Kremers; and "The Book Literature on New Remedies," by Lida Winkelblech and Edward Kremers.

"Bezoar," by William Kirkby.

"New Drugs Introduced during the Last Fifty Years," by E. M. Holmes.

The last two papers are by two of our honorary members in Great Britain.

"A Swedish Drug Store of the 18th Century," by B. E. Höckert.

"Historical Sketch of the School of Pharmacy of the University of Illinois," by William B. Day.

"Possible Services of the American School of Oriental Research in Bagdad," by Adelaide Rudolph; later the paper was temporarily withdrawn.

"Historical Notes on Some Edible Plants Used by Our American Indians," by William J. Bonisteel.

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* March JOURNAL, A. PH. A., p. 225.

"A Sixteenth Century Champion of Pharmacy," by William J. McGill.

"Apothecaries Hall—The Oldest Drug Store in America," by John Bennett.

R. S. Lehman gave an illustrated talk which described interestingly the evolution of the postage stamp in America, and explained why it has become an item of drug store merchandise. The slides used to illustrate this paper were donated by Mr. Lehman to the historical files of the Association. Hugo Kantrowitz expressed pride in the fact that he had given Mr. Lehman, when a lad of seven years, the first postal stamp album; this was the incentive to become a collector of stamps, and he is now secretary of a society of philatelists.

A vote of thanks was extended to Mr. Lehman.

Thomas D. McElhenie, one of the veterans of 1872, read two papers: "Memories of '72," and "Jobbers I Have Traded with." They were full of interest.

In offering his article on "Medical Superstitions and the Pharmacists' Opportunity in Folk Lore," E. V. Howell stated that the subject was closely associated with pharmacy and, by presenting this paper, he hoped that this Section would become interested in folk lore. The author said that superstition ran through all literature. He contributed quite a number of clippings and references to the historical files.

"The First Pharmacopoeia Published in the United States," by J. W. England, was presented by E. G. Eberle who stated that the reprints which were given to those present were prepared from "The First Century of the Philadelphia College of Pharmacy," of which Mr. England is the editor. Copies of plates prepared from the first edition of the first American Pharmacopoeia were included in the reprints, and also a reproduction of a letter of Dr. William Brown.

A biographical sketch of William Simpson, forty-second president of the American Pharmaceutical Association, was read by J. G. Beard. Four reproductions of photographs of Mr. Simpson accompanied the memoir.

"Johnny Appleseed" was the subject of a contribution by J. W. Sturmer; a photograph of a memorial stone in his memory accompanied the article.

Lyman F. Kebler announced progress in the compilation and preparation of his comprehensive paper on "The History of Federal Legislation Affecting Drugs."

Clyde L. Eddy, of New York, was elected chairman of the Section and R. S. Lehman, of New York, secretary. The final session of the Section on Historical Pharmacy was then adjourned.

WOMEN'S SECTION.

The ninth annual meeting of the Women's Section of the American Pharmaceutical Association was called to order at 10:30 A. M., August 16, 1922, by the president, Mrs. Lewis C. Hopp, Cleveland. The secretary not being present, Miss Bagley acted as secretary, *pro tem.*

Dr. C. A. Mayo addressed the Section, explaining the origin of the gavel which he had presented to the Section at the San Francisco meeting in 1915. He likened the virtues of the orange wood, of which the gavel is made, to the qualities which are most desired in women—attractiveness and the ability to wear well. He pointed out that in the general trend of progress of the times, women have come to a parity with men in all the professions including pharmacy, and stressed the part which the women of the A. Ph. A. can play in the work of the general association and that that work is not only the duty of the women who are eligible to the Section, but is also their privilege.

The president then called upon Mrs. Godding, the first president of the Section, to say a few words. Mrs. Godding stated that there seemed to be some misunderstanding that the Women's Section was an independent organization and pointed out that it is a part of the A. Ph. A., on the same status as other sections and cannot function outside the limits of the A. Ph. A.

The president then read her address; it follows:

ADDRESS OF THE PRESIDENT.

With assurance and pride we acknowledge our city an ideal summer resort; likewise in winter it blows you an insistent welcome. You have had the personal greetings of the resident women; we gave you the welcome collectively with the men; now it is extended to you through me as president of the Women's Section, which has its place on the program with the meetings of these men of science—our husbands—though not with them.

A president's second term gives an opportunity to reëstablish. For me it has been a research and, perhaps, will bear its best results later, as most researches do.

How many fine and capable predecessors there have been! It is my opinion they should have remained in office until this growing child was able to pass the guidance and continuance of this work to others.

Always woman has been recognized as a power for good or evil. At present she is not a silent power, for openly and credibly are filled all positions by her in every field all over the globe. The woman pharmacist comes to these meetings and has the opportunity to compete with these scientific men on the Association floor, therefore we cannot hold her in this Section.

We perhaps unconsciously have influenced our men to enforce laws to curtail unscrupulous sales. Haven't we also influenced them regarding what seems to be the by-word of every druggist's wife—"His time for the other fellow being." It isn't our fault that our men feel the need for more commercialism and we gain it at their expense, they doing without another clerk.

Commercialism is the crime of the age and the multitude wish it solely for the expenditure of pleasure.

Persistently the strain of all the papers have been to meet and cultivate each other on a social basis. What further progress for the good of many comes through these acquaintances formed and by exploiting our own experiences. In extending this hand of fellowship to the guests, the closer intimacy will follow naturally. For this reason it seems expedient to have as president a woman in the city you next meet in. It likewise seems a necessity to establish a permanent secretary in order to accomplish what this Section endeavors to do.

It has been impossible to lengthen the sessions of this Section and you will all be pleased to have the opportunity of visiting with each other before luncheon and then ride out upon the waters for a rollicking or restful time.

The address was duly accepted, with a vote of thanks.

On motion duly carried, the Chair was instructed to appoint a committee of two to investigate the proposition to change the names of our officers by substituting the word "chairman" for the word "president" wherever it appears in the roster and to eliminate the office of treasurer.

The Chair appointed on this committee Mrs. L. F. Kebler and Miss Bagley. Later the committee reported that the By-Laws of the Section carried sufficient authority to sanction the proposed change and on motion duly carried it was so ordered and announcement made to the Council of A. Ph. A. as follows:

> "Council of American Pharmaceutical Association: By vote of the Women's Section at its meeting August 17, 1922, the By-Laws of the Section were amended to change the name of the officers by substituting the word 'chairman' for the word 'president,' making the roster uniform with that of other sections. The office of treasurer is also eliminated."

On account of the changing of secretaries and the great distances in their residences, the minute book of the Section was not available for this meeting. Miss Bagley agreed to compile the minutes of former meetings as printed in the JOURNAL A. PH. A. and preserve them in permanent form.

The Chair appointed as nominating committee, Mrs. E. R. Selzer and Miss Elizabeth Jenkins.

An adjourned session was held to act on the report of the nominating committee. The report nominated the following officers:

Chairman: Mrs. L. F. Kebler, Washington, D. C.

First Vice-Chairman: Mrs. J. G. Godding, Boston, Mass.

Second Vice-Chairman: Mrs. L. L. Walton, Williamsport, Pa.

Secretary: Miss Anna G. Bagley, Columbus, Ohio.

Members Executive Board: Mrs. L. C. Hopp, Cleveland, Ohio, Mrs. J. H. Beal, Urbana, Ill.

The report of the Committee was accepted and on motion duly carried the secretary was instructed to cast the ballot of the Section for the officers named, which was done.

At the Thursday morning session the previous minutes were read and accepted.

The Chair asked for suggestions for a slogan to be used by the Section and "What Shall We Do to Serve" was adopted.

Each new officer as she was installed pledged her earnest effort to further the work of the Section and to do her part in spreading the gospel of the A. Ph. A.

The secretary was instructed to send letters of thanks to the Cleveland ladies for their hospitality and generous entertainment during the convention. ANNA G. BAGLEY, *Secretary.*

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the Editor on the day following the meeting, if possible. Minutes should be typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter. To maintain its activity and representation each branch should see that at least three of its meetings during the year are reported in the JOURNAL.

BALTIMORE.

The October meeting of the Baltimore Branch of the American Pharmaceutical Association was held at the Emerson Hotel October 25; Dr. Hermann Engelhardt presided.

Prof. John C. Krantz presented a paper on "The Estimation of Gaduol in Tasteless Extracts of Cod Liver Oil."

At the request of President Engelhardt, Mr. Krantz also read a paper entitled, "Chemical Education in Pharmacy Schools," which he recently presented before the Section on Education of the American Chemical Society. This paper was prepared as part of a symposium on chemical education and created considerable interest concerning the proper presentation of chemistry to students of pharmacy. It outlines the method adopted by the School of Pharmacy of the University of Maryland after an extensive study of this question.

Pharmaceutical organizations have been asked to endorse a "Model" State Narcotic Law, but many of these organizations have felt that the enactment of such a law should be preceded by a comprehensive investigation of the entire narcotic drug situation in the United States. This Model Law was discussed by the Branch, Dr. E. F. Kelly leading the discussion, and the secretary was instructed to communicate with Congressman Lester D. Volk, the Maryland members of Congress, the Chairman of the Committee on Rules, and present the following resolutions:

Resolved, That the Baltimore Branch of the American Pharmaceutical Association approves the purpose of the House Resolution No. 258 pertaining to an investigation of conditions in the United States relative to drug addiction; with the request that any members of Congress who are pharmacists be included in the Committee of Investigation.

The program for the next monthly meeting was arranged, and the members present expressed themselves as looking forward to these monthly meetings with great interest.

B. OLIVE COLE, *Secretary-Treasurer*.

CHICAGO.

The 129th meeting of the Chicago Branch of the American Pharmaceutical Association was held Friday evening, November 10, at the University of Illinois School of Pharmacy. President C. M. Snow presided.

The address of the evening was made by Frederick F. Ingram, Jr., of Detroit, who discussed the topic "The Origin and Production of Perfumes." Mr. Ingram illustrated his address with many lantern slides and with many specimens of perfumery materials.

He classified the methods of obtaining the materials for use in the preparation of perfumes under six heads, namely:

1. By expression—such materials as the oils of sweet orange, lemon and bergamot.
2. By maceration—benzoin, tolu balsam, Peru balsam, ambergris, civet and musk.
3. By distillation—oils of rose, geranium, patchouli, ylang-ylang, lemon grass, etc.
4. By enfleurage—the delicate flower odors such as violet, jasmine, tuberose, rose, orange flowers and acacia (Cassie).
5. By extraction with volatile solvents—the same odors as listed under enfleurage.
6. Synthetic products.

The pictures were largely of the region about Grasse and Cannes and embraced many beautiful scenes showing the terraced gardens for the growing of roses, tuberoses and jasmine, the slopes of the high hills and low mountains with olive orchards beneath where are cultivated violets, and the gardens of bitter orange and acacia. Lavender is produced in the higher mountain valleys. Many of the pictures showed the perfume factories of

Grasse, of which there are forty. The various steps in the picking and handling of the flowers, the separation of the petals, the processes of enfleurage and the extraction with petroleum benzin were also splendidly shown. One receives an entirely new impression of this industry when one realizes that 40,000 people in this region obtain their living through it. The discovery and development of synthetics used in perfumes was splendidly presented. Special attention was given to ionone, almost identical with the natural ionone, the odorous principle of violet, and to heliotropine and the various terpenes.

Mr. Ingram brought out the point that it was exceedingly difficult to analyze perfume by chemical means. For instance, oil of rose is said to possess forty distinct compounds. The usual method of analysis is by the sense of smell. The great development and training of this sense is a first essential. It is then possible, frequently, to pick out, by the odor, the various ingredients of a mixed perfume, though it may take weeks or months of persistent effort to do so.

He discussed many phases of perfume manufacture and illustrated the development and production of an entirely new combination of odors which has since become a popular perfume.

He also paid particular attention to the display and presentation of perfume to a customer and brought out that a perfume should never be offered for trial except in such a manner that the alcohol can be entirely volatilized first. This is most nicely done by placing a drop of perfume on a small piece of white filter paper. The alcohol very rapidly evaporates, leaving the true bouquet of the perfume. Furthermore, the untrained sense of smell soon becomes clogged, especially with heavy oriental odors, and great care should be exercised in the order in which perfumes are presented to a customer.

Mr. Ingram mentioned a number of methods of advertising, especially by perfumed blotters which he showed were not expensive and could be used not only in envelopes in the mail, but also in boxes of stationery and wrapped packages. He made the point also that customers should be educated in the use of perfume. He made the very important point that articles of wearing apparel such as blouses, handkerchiefs, etc., should be perfumed some hours before they are to be used and then kept in closed drawers or boxes. In this way the alcohol is volatilized, the rankness is softened and the bouquet is beautifully developed.

The large audience including many retail druggists received the lecture very enthusiastically and the speaker was besieged by questions and the examination of his specimens for a half-hour.

The next meeting will be held December 8. A paper by Secretary E. N. Gathercoal on "The Valuation of Kino, Gambir and Catechu" will be presented. At the January meeting Mr. L. E. Warren of the American Medical Association laboratory will discuss "Some of the Newest Things in Medicine."

CINCINNATI.

At the November meeting of the Cincinnati Branch of the American Pharmaceutical Association, Caswell A. Mayo discussed some of the newer problems of the manufacturing pharmacist, illustrating his address with numerous slides.

The most of the evening was devoted to a discussion of protein sensitization as the basis of disease and of protein diagnosis by means of pure proteins, and of protein therapy by the use of non-specific proteins.

The speaker outlined the growth of non-specific therapy from the work of Rumpf in 1893 down to the present time, including references to the work of Schmidt and Ludeke with milk, of Nolf with albumoses, and various other forms of non-specific protein therapy which had been developed from time to time.

He then described in detail the methods used in the manufacture of proteogens, which are non-specific proteins, together with extractives of certain drugs of special therapeutic value in the particular disease for which the particular proteogen is designed. He gave the formulas used in the preparation of these proteogens and explained not only the method of preparation but the theory on which each of the various constituents was introduced.

Dr. Mayo likewise described the method of preparation of Fibrogen, a product used to hasten blood clotting, which may be given by hypodermic but not by intravenous injection.

VIRGINIA.

A meeting of the Virginia Branch of the American Pharmaceutical Association was held in the auditorium of the Medical College of Virginia, Richmond, on the evening of November 8, at which meeting was shown a

fine collection of slides loaned the Branch by Dr. Caswell A. Mayo, Cincinnati, showing the plants of many of the leading schools of pharmacy from the Atlantic to the Pacific. The slides were accompanied by an explanatory key paper. These slides were the same as were presented by Dr. Mayo at the Cleveland meeting of the A. Ph. A. About thirty members were present, together with the members of the Board of Pharmacy, and pharmacy students of the M. C. V. The meeting was very entertaining as well as highly instructive, and the appreciation of the Branch was extended to Dr. Mayo for the fine work he has done along this particular line.

A. L. I. WINNE, *Secretary.*

COMMITTEE REPORTS

DRAFT OF MODEL FOR STATE NARCOTIC LAW.

The second conference of representatives of the various professions and trades was held in New York at the Academy of Medicine, 17 West 43rd Street, on Wednesday, November 8th, at 9 A. M., and considered the draft of the proposed model state anti-narcotic law completed by the committee appointed for this purpose as directed by the previous conference held on March 2nd, last. The following representatives were invited to attend this conference:

Anderson, Dr. Wm. C., American Conference of Pharmaceutical Faculties.
Arny, Dr. Henry V., American Conference of Pharmaceutical Faculties.
Beal, J. H., National Drug Trade Conference.
Bevans, James W., National Wholesale Druggists' Association.
Bigelow, Horace W., American Drug Manufacturers' Association.
Blair, Thos. S., M.D., Pennsylvania State Department of Health and Committee of Council on Health, A. M. A.
Chamberlain, J. P., Legislative Drafting Bureau, Columbia University.
Christensen, H. C., National Association Boards of Pharmacy.
Dunn, Charles Wesley, American Pharmaceutical Manufacturers' Association.
Dunn, Morley K., American Pharmaceutical Manufacturers' Association.
Eberle, E. G., American Pharmaceutical Association.
Emerson, Haven, M.D., Council on Health, American Medical Association.
Finneran, J. F., National Association of Retail Druggists.
Foy, J. H., American Association Pharmaceutical Manufacturers.
Henry, Samuel C., President National Drug Trade Conference.
Hostmann, Jeannot, American Pharmaceutical Association.
Hunsberger, Ambrose, Ex-President National Association of Retail Druggists.
Lascoff, J. Leon, President New York State Board of Pharmacy.
Noonan, Harry, American Pharmaceutical Manufacturers' Association.
Pickett, James F., President United Medicine Manufacturers of America.
Possehl, John J., Executive Committee National Association of Retail Druggists.
Robb, Clinton, Counsel United Medicine Manufacturers of America.
Roberts, J. C., American Drug Manufacturers' Association.
Thompson, H. B., Proprietary Association of America.
Turner, John P., American Veterinary Medical Association.
Waterbury, C. H., Secretary National Wholesale Druggists' Association.

The Conference was called to order at 10 A.M. and, except for a luncheon recess from 1 to 2 P.M., continued in session until 6 P.M., when it adjourned *sine die.*

Dr. Haven Emerson, Chairman of the Conference, presided. He reported upon the activities of the drafting committee, and then offered for consideration a draft of the proposed law as prepared by the Drafting Committee.

It was moved, seconded and duly carried that the draft of the Model State Law should be read section by section and each section be considered and approved provisionally before passing to the next succeeding section. This procedure was followed and the results of the discussion and decisions are expressed in the following draft, presented by J. B. Chamberlain for the Drafting Committee:

Section 1. Definitions. As used in this Act:

(1) Person. The term "person" includes any corporation, association, co-partnership or individual.

(2) Physician. The term "physician" means any individual authorized to practice medicine under the laws of this state.

(3) Apothecary. The term "apothecary" means any person authorized to practice pharmacy under the laws of this state.

(4) Dentist. The term "dentist" means any individual authorized to practice dentistry under the laws of this state.

(5) Veterinarian. The term "veterinarian" means any individual authorized to practice veterinary medicine under the laws of this state.

(6) Manufacturer. The term "manufacturer" means a person who by compounding, mixing or other process of manufacture, produces or prepares habit forming drugs for sale on written orders or who manufactures, produces, or prepares any preparation which corresponds to the descriptions enumerated in Section 4 of this Act, and does not include an apothecary who compounds habit forming drugs to be sold or dispensed on prescription.

(7) Wholesaler. The term "wholesaler" means a person who deals in habit forming drugs on written orders.

(8) Sale. The term "sale" includes sale and offer for sale.

(9) Dispense. The term "dispense" includes distribute, leave with, give away, dispose of and deliver to a person or to his agent to be delivered to him.

(10) Administer. The term "administer" means only administration by a person authorized to administer habit forming drugs, or under his orders by a nurse, hospital attendant, interne, or by any other person designated by him.

(11) Coca leaves: The term "coca leaves" includes coca leaves, cocaine, or any compound manufacture, salt, derivative or preparations thereof including any of their salts or any compound of any of them, but shall not include decocanized coca leaves or preparations made therefrom or other preparations of coca leaves which do not contain cocaine.

(12) Opium: The term "opium" includes opium, morphine, codeine, diacetyl morphine (heroin), and any compound, manufacture, salt, derivative or preparation of any of them; but the preparations described in Section 4 of this Act shall not be deemed to be compounds, derivatives or preparations of opium or of its salts or derivatives.

(13) Habit forming drugs: The term "habit forming drugs" means coca leaves or opium.

(14) Written order. The term "written order" means an order on an order form issued by, or other order acceptable to, the Commissioner of Internal Revenue of the United States under the Harrison Act.

(15) Number and gender. The singular includes the plural, the masculine includes the feminine and neuter.

(16) Harrison Act. The term "Harrison Act" when used in this Act means the Act of Congress entitled "An Act to provide for the registration of, with collectors of internal revenue, and to impose a special tax upon all persons who produce, import, manufacture, compound, deal in, dispense, sell, distribute, or give away opium or coca leaves, their salts, derivatives, or preparations and for other purposes"—approved December 17, 1914, as amended.

Section 2. Acts prohibited. No person shall possess, sell, distribute, administer, dispense, or prescribe any habit forming drugs except as provided in this Act.

Section 3. Sale on written orders.

(1) A manufacturer, wholesaler, or apothecary may sell, distribute or dispense habit forming drugs on a written order:

(*a*) To any manufacturer, wholesaler, or apothecary;

(*b*) To any physician, dentist, or veterinarian;

(*c*) To any public or private hospital;

(*d*) To any hospital or institution licensed for the treatment of drug addiction;

(*e*) To any person in charge of a laboratory where habit forming drugs are used for scientific or medical research, but only for such use in such laboratory;

(*f*) To any person in the employ of the United States or of this state or of any political sub-division thereof purchasing or receiving the drugs in his official capacity;

(*g*) To a captain or proper officer of a ship upon which no regular physician is employed for the use of the officers and crew for medical needs of the captain and crew when not in port.

Provided that both parties to the transaction, if required to be registered under the Harrison Act, are so registered.

Note: Sub-division (*g*) is inserted for application to states having ports.

(*h*) A written order shall be signed by the person giving it or by his duly authorized agent and shall be kept for two years by the person filling it in such a way as to be readily accessible for inspection and shall be subject to inspection by any public officer or employee engaged in the enforcement of this Act.

(*i*) Possession of habit forming drugs obtained as provided in this section shall be legitimate if possessed in the regular course of business, occupation, profession, employment or duty of the possessor.

Section 4. Preparations and remedies.

A person may manufacture, sell, dispense or possess preparations and remedies not otherwise prohibited by law, which contain not more than two grains of opium, or more than one-quarter of a grain of morphine or more than one-eighth of a grain of diacetyl morphine (heroin), or more than one grain of codeine, or any salt or derivative of any of them in one fluidounce; or liniments, ointments, or other preparations which are prepared for external use only, except liniments, ointments, and other preparations which contain cocaine or any of its salts or any synthetic substitute for them: provided that such remedies and preparations are manufactured, sold, dispensed or possessed as medicines and not for the purpose of evading this Act.

Section 5. Professional use:

(1) Veterinarians. A veterinarian in the course of his professional practice only and not for use by a human being, may prescribe, administer or dispense habit forming drugs.

(2) Dentists. A dentist, in good faith in the course of his professional practice only, may prescribe for, administer or dispense habit forming drugs to patients under his immediate treatment.

(3) Physicians. A physician, in good faith, in the course of his professional practice only, may prescribe, administer or dispense habit forming drugs.

Section 6. Prescriptions.

(1) Any apothecary may sell or dispense habit forming drugs to any individual upon a written prescription of a physician, dentist, or veterinarian, dated and signed on the day when issued and bearing the full name and address of the patient and the name, address and registry number of the practitioner under the Harrison Act. The person filling the prescription must write the date of filling and his own signature upon the face of the prescription, and the prescription must be retained on file by the apothecary filling it for two years so as to be readily accessible for inspection and it shall be subject to inspection by any public officer or employee engaged in the enforcement of this act.

(2) No such prescription shall be refilled except prescriptions specifying codeine, or a preparation containing codeine, and no other compound of opium or coca leaves.*

Section 7. Record to be kept.

Every physician, dentist, and veterinarian shall keep a record of all habit forming drugs dispensed by him, showing the amount dispensed, the date, the name and address of the patient; and in case of a veterinarian, the name and address of the owner of the animal for which such drugs are dispensed or distributed. The record shall be kept for two years from the date of dispensing such drugs so as to be readily accessible for inspection, and shall be subject to inspection by the proper authorities.

---

* This provision is at present contrary to the regulations now in force under The Harrison Act and is approved subject to revision of the regulations by the Treasury Department to conform to this provision of the proposed State Model Law. The conference expressed its belief that every effort should be made to obtain modifications of the existing Treasury Department regulations so that there may be agreement between them and the proposed text of the Model Law.

Section 8. Label.

Whenever an apothecary pursuant to a written prescription shall dispense habit forming drugs or whenever a physician, dentist or veterinarian shall dispense any of such drugs, he shall securely affix to the container of such drugs a label stating in legible English the name and address of the physician, dentist or veterinarian prescribing and of the apothecary dispensing and the date when and the name and address of the person for whom or the owner of the animal for which the drug is dispensed.

Section 9. Authorized possession of drugs by individual.

A person to whom or for whose use any habit forming drug has been dispensed by an apothecary, physician or dentist, or the owner of an animal for which any such drug has been dispensed by a veterinarian, may lawfully possess it in the container delivered to him by the person dispensing same.

Section 10. Physical examination required.

A physician, dentist or veterinarian shall not administer, dispense or prescribe any habit forming drugs, except after a physical examination of the person for whom or animal for which the drug is intended.

Section 11. Exemption from restrictions.

(1) The provisions of this act restricting the possession of habit forming drugs shall not apply to common carriers or warehousemen or their employees engaged in the lawful transportation or storage of such drugs, or to public officers or employees while engaged in the performance of their official duties, or to temporary incidental possession by employees or agents of persons lawfully entitled to possession, or by persons whose possession is for the purpose of aiding public officers in the performance of their official duties.

(2) This Act shall not apply to acts done, or to habit forming drugs possessed, in the course of interstate or foreign commerce.

Section 12. Drugs delivered to local or state department of health.

All drugs which have been seized and judicially determined to have been unlawfully possessed or the title to which has ceased and which have come into the hands of a peace officer, shall, upon the direction of a court or magistrate, be delivered to the Department of Health, which shall keep record of its receipt, and shall be delivered by it to the Collector of Internal Revenue for the district in which the drugs were seized, from whom a receipt shall be required.

Section 13. Use of federal forms.

Whenever by this act any record is required to be kept or any order blank or prescription to be used, a record kept on any order blank prescription used under the Harrision Act or under rules or regulations made thereunder, shall be sufficient fulfilment of the requirement of this Act.

Section 14. Revocation of licenses.

(1) On conviction of any physician, dentist, veterinarian or apothecary for wilful violation of any of the provisions of this Act, a copy of the sentence and of the opinion of the court or magistrate, if any be filed, shall be sent by the clerk of the court, or by the magistrate, to the Board or officer having power to suspend or revoke the license or registration of the person convicted, for such action as the Board or officer deems proper.

(2) At the request of such Board or officer, the clerk or magistrate shall send to such Board or officer a transcript of the record or of the proceedings in a court not of record, and such portion of the evidence as may be requested.

Section 15. Penalties.

A violation of any of the provisions of this article shall constitute a misdemeanor.

Note: No definite penalty is included, as the question of how severe the penalty should be is left to each state. It is usual in the states to make a violation a misdemeanor and usually the penalties are fixed in the state statute. Sometimes it is enough to say that a violation "shall constitute a misdemeanor," depending upon a provision in the penal law of the state, as in New York, fixing the penalty for misdemeanor, but it will usually be found advisable to fix the penalties expressly in the statute.

Section 16. Enforcing authority.

Note: No particular enforcing authority has been insisted on since the existing statutes show that different states have different opinions as to the proper enforcement. Furthermore,

if the state health authority is made the enforcing authority, it will be necessary in each state to use the proper term to describe that authority, sometimes the department of health, sometimes the health commissioner or board of health. In some cases a department of public safety or commissioner of public safety will be the proper enforcing authority. In any case, however, the power to make rules and regulations should be phrased as follows:

"The Department may make rules and regulations necessary for the enforcement of this Act, but such rules and regulations shall be kept in conformity with the rules and regulations made under the Harrison Act."

Section 17. Short title.

This Act shall be known and may be cited as "The Narcotic Drugs Act."

MEMORANDUM.

1. Title. The committee has judged it best not to propose any title for the Act, since the requirements in state constitutions respecting title are dissimilar.

MASSACHUSETTS.—Title:

"An Act Relative to the Sale and Distribution of Certain Narcotic Drugs."

PENNSYLVANIA.—Title:

"For the protection of the public health by regulating the possession, control, dealing in, giving away, delivery, dispensing, administering, prescribing, and use of certain drugs and keeping records thereof; by providing for revocation and suspension of licenses of physicians, dentists, veterinarians, pharmacists and druggists, for certain causes, and by providing for the enforcement of this Act, and penalties."

NEW YORK.—Title:

"To amend the public health law, in relation to habit forming drugs, to provide for the control of the possession, sale, prescribing, dispensing, dealing in and distribution of such drugs."

2. Administration. The committee does not recommend that any definite state agency, such as the health authority, administer the Act, but leaves this question to the choice of each state. It recommends that the bill be reviewed carefully after the administrative authority has been determined upon to be sure that the proper terms are used to designate the administering authority in the bill.

3. Definitions. Many of these will be unnecessary in certain states. For example, Section I (15) will be unnecessary in a state like New York, as it is already included in the general construction act. The definitions of physician, apothecary, dentist and veterinarian will need to be extended in most states by a reference to statutes which provide for the licensing of these professional persons in order to get a complete description. For example, in New York the term "physician" would have to be defined as follows:

"The term 'Physician' means a licensed practitioner of medicine as defined by article eight of this chapter," etc. In Massachusetts the statute refers to a special chapter of the revised laws which describes "druggist, apothecary, or pharmacist," the three words being used. In Massachusetts physicians, dentists and veterinarians are defined as persons "duly registered and authorized to practice their profession." Pennsylvania describes them as "licensed physician, dentist, or veterinarian," without definite reference. It may be necessary to add definitions in certain cases. For example, in New York the term medicine is defined in the public health law, Section 236 (9) so that a similar definition would be advisable here or a reference to the public health law definition, in order to make sure that the same thing was intended. In other states, which have not for other purposes defined medicine, this would seem to be unnecessary.

Resolved, That the draft of the result of our deliberations as embodied in Sections 1 to 17 as amended, be submitted to the respective organizations represented in this conference for their consideration and for such disposition as they shall, respectively, deem appropriate.

BARIUM SULPHATE FOR ROENTGEN-RAY WORK.

REPORT OF THE COUNCIL ON PHARMACY AND CHEMISTRY.

The Council has adopted the report of the American Medical Association Chemical Laboratory on Barium Sulphate for Roentgen-ray Work that follows and directed that the revised tests and standards be included in New and Nonofficial Remedies, 1923.

W. A. PUCKNER, *Secretary.*

In consideration of the increasing use of barium sulphate in Roentgen-ray work, the Council decided to describe barium sulphate for Roentgen-ray work in New and Nonofficial Remedies. The description which appears in New and Nonofficial Remedies, 1917, was prepared after consulting interested manufacturers. This description has appeared in subsequent editions of New and Nonofficial Remedies with but minor changes.

A firm which manufactures barium sulphate for Roentgen-ray work criticized the test for this substance, which limits the amount of permissible phosphate.

The firm stated that in the manufacture of barium sulphate for Roentgen-ray work it has been the aim to supply an article of as high a degree of purity as is commercially obtainable and that the test which it employs to limit the amount of soluble barium salts is more stringent than that prescribed in New and Nonofficial Remedies. The firm stated that, though its product was free from objectionable impurities and equal to that of other brands on the market, it was confronted with the difficulty that its product, when tested by the New and Nonofficial Remedies standards, appears to contain acid-soluble barium salts. The firm urged that the phosphate test be omitted, in that it shows a noticeable reaction for phosphate when barium phosphate is totally absent, but when non-poisonous and unobjectionable phosphates, such as calcium phosphate, were present.

The manufacturer submitted the tests which were used for the control of barium sulphate for Roentgen-ray work. These included the test for soluble barium salts and also the following test for the fineness (fluffiness) of the product:

> Introduce 15 Gm. of the material into a 50 cubic centimeter glass-stoppered cylinder and add sufficient water, so that, after thoroughly agitating the mixture, it has a total volume of 50 cc. After this mixture has stood for ten minutes, the upper or aqueous layer should not exceed 5 cc.

The objection to the phosphate test appeared well founded, and the proposed revision of the text for soluble barium salts and the "fluffiness" test worthy of consideration; therefore, the A. M. A. Chemical Laboratory drew up a tentative revision of the N. N. R. standards which omitted the phosphate test and included the more sensitive barium test and the "fluffiness" test. It submitted this revision to those firms whose brands of barium sulphate for Roentgen-ray work had been admitted to New and Nonofficial Remedies.

In general, the replies which were received indicated that the firms were ready to accept the more stringent test for barium salts, other than barium sulphate, and also the "fluffiness" test. One firm, however, definitely objected to the latter test on the ground that users of barium sulphate in Roentgen-ray laboratories had found difficulty in preparing suspensions with a too "fluffy" product. Some of the firms did not favor omission of the phosphate test on the ground that appreciable amounts of insoluble phosphate, such as calcium phosphate, should not be permitted in barium sulphate, and two firms recommended the adoption of a test limiting the water and acid soluble material in barium sulphate. For the latter test, the argument was advanced that, under the present N. N. R. standards, large quantities of foreign salts are permitted.

Since one firm held that a "fluffy" barium sulphate had proved unsatisfactory, inquiry was made of a representative group of Roentgenologists as to whether they considered it desirable that barium sulphate be required to be in a finely divided physical condition. Inquiry was also made as to the brands which had been found satisfactory.

In general, the twenty-eight replies which were received held that barium sulphate should be in as fine a state of sub-division as possible. However, many of the replies held that extreme fineness was not essential. This was emphasized by the enumeration of the brands that had been used with satisfaction. One correspondent stated that a medium fineness was to be preferred and that difficulty had been experienced in the use of a very fine powder. Another correspondent stated that a powder passing a forty mesh sieve was satisfactory, and another that a product was acceptable so long as it did not clog up an enema tube (containing no particles larger than a grain

of what). Several objected to the high price charged for some of the very finely divided products. The following is the reply of a prominent Roentgenologist:

> We have used barium sulphate from various manufacturers, and have found little difference, except as to price. For example, some manufacturers label their barium sulphate, "Specially prepared for X-ray purposes," and boost the price three or four hundred percent. For the last ten years we have used ——'s chemically pure barium sulphate. It has always proved entirely satisfactory. Other things being equal, I think that perhaps the barium sulphate which remains longest in suspension would be most desirable. To sum up, I would answer your first question by saying that it is not essential for the barium to be any more finely divided than it is in the various brands that we have used. Second, all brands were found to be satisfactory.

From the replies of the users of barium sulphate, it appears that the fluffiness test is not essential. It has the objection that a powder containing a small proportion of very fine material will respond favorably to the test, even though it contains a relatively large proportion of coarse particles.

The replies also make it clear that the phosphate test (which makes a product containing a negligible amount of calcium phosphate inadmissible) is unnecessary. The adoption, in its place, of a test which shall require reasonable freedom from foreign salts, along with tests which shall guarantee freedom from water soluble and acid soluble barium salts and freedom from heavy metallic salts, such as those of lead, would appear adequately to insure a barium sulphate, for Roentgen-ray work which is of acceptable quality and which can be produced at a reasonable price.

The revised tests and standards for barium sulphate which were drawn up on the basis of the available evidence were submitted for criticism to the firms whose brands of barium sulphate for Roentgen-ray work stand admitted to N. N. R. In consideration of the replies received, the laboratory recommends the adoption of the following tests and standards for barium sulphate for Roentgen-ray work, in place of those now in New and Nonofficial Remedies:

Barium Sulphate for Roentgen-ray Work.—Barii Sulphas Roentgenographicus.—Barium sulphate freed from soluble barium salts.

> Barium sulphate for Roentgen-ray work is a fine white, odorless, tasteless and relatively light powder, free from grittiness, and is insoluble in water and organic solvents as well as in aqueous solutions of acids and of alkalies.
>
> Mix 0.5 Gm. of barium sulphate for Roentgen-ray work with 2 Gm. each of anhydrous sodium carbonate and anhydrous potassium carbonate; heat the mixture in a crucible until fusion is complete; treat the resulting fused mass with hot water, and then filter. Acidify a portion of the filtrate with hydrochloric acid; add 1 cc of barium chloride solution; a white precipitate forms (*sulphate*). Dissolve a portion of the well-washed residue in acetic acid and add 1 cc of potassium chromate solution; a yellow precipitate forms (*barium*). Dissolve another portion of the well-washed residue in a small amount of hydrochloric acid; place a drop of the solution on the loop of a clean platinum wire, and ignite in a non-luminous flame; a green color is imparted to the flame (*barium*).
>
> Boil 10 Gm. of barium sulphate for Roentgen-ray work with 100 cc of hydrochloric acid, 1 percent, for ten minutes, and add sufficient water to restore the original volume. Cool the mixture and filter through a paper which has been washed previously with the diluted hydrochloric acid, returning the first portions if necessary until a perfectly clear filtrate is obtained. Evaporate 50 cc of the filtrate to dryness on the water-bath; add 2 drops of hydrochloric acid, U. S. P., and 10 cc of hot water; filter through a hydrochloric acid washed filter; wash with 5–10 cc of hot water, and evaporate the filtrate to dryness in a tared dish on the water-bath. The residue, when dried to constant weight at from 100 to 110° C. should not be more than 0.3 percent (*limit of water and dilute acid soluble non-volatile material*). Treat the residue with 10 cc of water; filter the solution through a hydrochloric acid washed filter and add 0.5 cc of diluted sulphuric acid; no turbidity should develop within one-half hour (*soluble barium salts*).
>
> Boil 5 Gm. of barium sulphate for Roentgen-ray work with 50 cc of diluted acetic acid. Filter while hot and saturate the clear filtrate with hydrogen sulphide; no turbidity or coloration should be formed (*heavy metals*).
>
> Triturate 2 Gm. of barium sulphate for Roentgen-ray work with 5 cc of concentrated hydrochloric acid, then add 10 cc of a freshly made, saturated solution of stannous chloride; no dark coloration occurs within one-half hour (*arsenic*).

EDITORIAL NOTES

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ERRORS IN "PRACTICAL STANDARDIZING OF ORGANIC DRUGS."

Dr. A. B. Lyons requests that we call attention to a serious error in his book on "Practical Standardizing of Organic Drugs." There has been a transposition of matter on pages 167 and 168; this is corrected by inserting after line 7 in paragraph B59 the matter (6 lines) at top of page 168; follow with the matter on page 167 beginning with line 10 (*i. e.*, with paragraph B60 and including the first 5 lines of B61).

On page 84, line 13, there is a misplaced decimal point—for 0.2 Gm. read 2.0 Gm.

It is hoped that those who have a copy of the book will make notations as above.

AGENT AND INSPECTOR, ANTINARCOTIC ACT.

The United States Civil Service Commission announces open competitive examinations for the positions of Agent and Inspector, Antinarcotic Act. The salaries range from $1800 to $2250 per year; Congress may allow an increase of $20 per month, after satisfactory service. Receipt of applications for the examinations close December 31.

BRIEF ABSTRACTS OF PAPERS READ BEFORE THE SCIENTIFIC SECTION, A. PH. A., CLEVELAND MEETING.*

WORK OF THE PHARMACOGNOSY LABORATORY, BUREAU OF CHEMISTRY, WASHINGTON, D. C.

By Arno Viehoever.

Progress has been made in the campaign for cleaner drugs in connection with Crude Drug Control. A new method has been worked out for the detection and separation of dirt by floating the plant tissue with carbon tetrachloride. Data were collected dealing with the principles involved in the adequate handling of crude drugs.

Of practical significance are the results of studies on products yielding hydrocyanic acid, saponins, cedrin and other glucosides. Santonin was discovered in domestic Artemisia species. New apparatus were devised for sublimation, microsublimation and micromelting point determination.

Domestic insects are being examined for cantharidin; and the work on certain food products, such as the various coffee species, and spices, *e. g.*, mustards, is being continued.

THE OCCURRENCE AND FORMS OF CALCIUM OXALATE IN OFFICIAL CRUDE DRUGS.

By Edgar T. Wherry and George L. Keenan.

About 75 of the drugs listed in the U. S. Pharmacopoeia IX, and the National Formulary, 4th edition, are stated to contain crystals of calcium oxalate. A study of these crystals by the immersion method under the petrographic microscope has shown that the larger part of the crystalline material heretofore described as being calcium oxalate has been confirmed as such, while in a few instances, *e. g.*, the leaves of belladonna and hyoscyamus, the crystalline material has been found to be a substance other than calcium oxalate monohydrate. With the aid of this method, the identification of crystalline material as calcium oxalate monohydrate in powdered drugs should be readily accomplishable.

KINO, GAMBIR AND CATECHU.

By E. N. Gathercoal and R. E. Terry.

The authors discuss the following problems:

Do these astringent drugs deteriorate upon aging, especially with exposure to air, sunlight or heat? Are there any identification tests for these drugs? Is the solubility in alcohol, hydro-alcohol or water a suitable test for the

* We are indebted to Chairman Arno Viehoever.

determination of the quality of these drugs? Why is gambir preferred to catechu as an astringent drug?

Studies of the Bark of Myrica Cerifera Linne.

By Heber W. Youngken.

Commercial samples of "Bayberry Bark" usually consist of the root bark containing rhizome bark or in further addition also aerial stem bark. The physical, histological and histochemical characteristics are described in detail. Tannin, gallic acid, starch and red coloring matter were found in the entire plant bark. The name "Wax Myrtle Bark" rather than "Bayberry Bark," generally referring to another Myrica species, is recommended for the bark of *M. cerifera L.*

A Botanical and Chemical Study of Nicandra Physalodes (L.) Pers.

By Anton Hogstad, Jr.

The Apple of Peru is an old-fashioned garden annual, which is to be found at the present time in waste places and old gardens, being cultivated for its large blue showy flowers. The plant resembles that of a large Physalis. The studies were made on materials derived from the Medicinal and Poisonous Plant Investigations Gardens, which include a macroscopical and microscopical description of the plant, with 20 drawings, historical data and chemical studies; the latter involving the complex study of the solanaceous alkaloids.

American Male Fern, Dryopteris Marginale.

By. E. E. Stanford.

This species is scatteringly common in dry soils of the northern states. It is smaller than its European relative, and consequently more expensive to prepare for market. It appears rarely to enter commerce, much of our "male fern" being in reality a species of Osmunda.

Preliminary studies by the Sollmann angleworm method indicate that the resin of *Aspidium marginale*, of which the specimens thus far examined give a good yield, approximates that of *Dryopteris filix-mas* in physiological activity.

The Pharmacology of Pyrethri Flores.

By W. H. Zeigler.

1. Alkaline solutions of the extract lose their activity upon standing.

2. It is toxic to ants when fed to them in 0.5 percent solution sweetened with syrup.

3. It is highly toxic to the boll-weevil both by mouth and by contact.

4. 0.1 mg. per Gm. body weight of the active extract of *Pyrethri Flores* dissolved by the aid of sodium hydroxide in 0.4 percent sodium chloride injected into the lymph sac of the frog, or subcutaneously into the turtle, produces within five minutes convulsions followed by paralysis.

5. The location of action is in the spinal cord.

6. The drug is not toxic to rabbits and dogs when injected subcutaneously or administered by mouth.

7. The amount of extract injected intravenously necessary to produce convulsions in the rabbit or dog under general anesthesia is uncertain. One-tenth of a mg. per Gm. body weight may prove effective.

8. The dog when injected intravenously under local anesthesia with the extract of *Pyrethri Flores* dissolved in 0.9 percent sodium chloride by the aid of sodium hydroxide, goes into convulsions which are not necessarily fatal.

9. The convulsant dose of the extract of the *Pyrethri Flores*, for a dog injected intravenously under local anesthesia, is about 0.04 mg. per Gm. body weight or about half the dose for the frog.

10. The convulsions are controlled by inhalations of ether.

Biological Standardization of Local Anesthetics, with Special Reference to Effects of Sterilization on Solutions of Cocaine and Procaine.

By Paul S. Pittenger.

This is a continuation of a previously reported paper in which the author describes a method for quantitatively determining the activity of local anesthetics. This method was then used in a series of experiments in order to determine the effects of different forms of sterilization and aging on solutions of cocaine and procaine.

The conclusions follow:

The activity of local anesthetics can be quantitatively determined by the method proposed.

The activity of solutions of cocaine and procaine is not affected by the addition of 0.3% Three Cresols or by sterilization by means of the Arnold sterilizer or autoclave at 115° C. for 15 minutes.

Unsterilized solutions of cocaine and procaine, solutions sterilized without heat ap-

parently lose no activity during a period of 3 months.

Unsterilized solutions of cocaine and solutions of cocaine sterilized without heat apparently lose about 10% of their activity during a period of 14 months.

Solutions of cocaine which have been autoclaved for 15 minutes at 115° C. apparently lose no activity during a period of 14 months.

Solutions of cocaine which have been Arnold sterilized apparently lose about 5% of their activity during a period of 14 months.

Unsterilized solutions of procaine, solutions sterilized without heat and solutions sterilized with heat, lose no activity during a period of 14 months.

Cocaine and procaine in the dry form are apparently stable and show no signs of deterioration during 14 months.

Concentrated solutions of cocaine or procaine can be sterilized 5 successive times at 115° C. without any apparent loss of activity.

Saccharin Feeding of Rats.

By B. Fantus and L. Hektoen.

The importance of saccharin as a sweetening agent for medicine and in *Diabetes mellitus* justified, it seemed to us, the undertaking of a prolonged feeding experiment.

Synopsis: Prolonged observation on several groups of rats receiving saccharin in their food, with special attention to weight curve, duration of life, and necropsy findings.

Conclusions: Feeding saccharin to rats in even relatively enormous doses and for a lifetime of these animals does not produce lesions appreciable either macroscopically or microscopically, nor does it interfere with the development of these animals or of their progeny, or shorten their span of life.

The Identification of Some Local Anesthetics.

By L. E. Warren.

The usual alkaloidal reagents have been applied to 2 percent solutions of alypine, apothesine, benzocaine, eucaine, butyn, cocaine hydrochloride orthoform, phenacaine, procaine, propaesin, quinine and urea hydrochloride, stovaine and tropacocaine. Observations on the optical activity of the substances studied were also made and a few color reactions were included. In a total of over 400 tests several reactions were observed which it is believed have not been reported previously. Several of these reactions are of particular value in the identification of the substances. A method for the rapid identification of certain local anesthetics has been worked out. This consists in first applying the diazo-reaction by which the substances are separated into two groups. This is followed by treating separate portions of the unknown solution, respectively, with potassium sulphocyanate, potassium iodide, sodium nitro-prusside, potassium sodium tartrate, potassium citrate, potassium permanganate and mercuric chloride. In these tests no two of the substances studied give parallel reactions.

LEPER DEATH RATE GREATLY REDUCED BY CHAULMOOGRA OIL TREATMENT.

A recent issue of the *British Medical Journal* states that the use of Chaulmoogra Oil for the treatment of leprosy has had an extremely beneficial effect in the treatment of this scourge in India. "The treatment was commenced at the largest Indian leper asylum at Parulia early in 1921. The death rate in the first six months was reduced to 66 percent and in the second six months to 29 percent and for the first six months of this year to 21 percent, as compared to the average rate for three years before the treatment was begun.

"Similarly at Fusion the annual death rate has been reduced from 25 to 5 percent."

During the past few months several errors have occurred in selling and dispensing barium sulphide, death resulting in two of the cases that have come to our attention. One of these was in the state of Washington, and the other in New Jersey. These accidents are indicative of the necessity for making inquiry relative to whether the sulphide or the sulphate is desired and prompts this item.

MORE THAN 500,000 ARE ON UNCLE SAM'S PAYROLL.

We are going fast in the direction of 1:10. There are now 68,718 employees in Washington from the President down who come within the purview of the Federal Executive Civil Service Records. They do not include another group in the employ of the legislative and judicial agencies.

The latest figures of the Civil Service Commission show the number of employees outside of Washington number 490,883, making the total more than 500,000. Before the war the number of federal employes was 438,057.

PERSONAL AND NEWS ITEMS.

MEMBERS WHO JOINED THE AMERICAN PHARMACEUTICAL ASSOCIATION IN 1873 OR EARLIER.

Names are given according to seniority; if of the same year, in alphabetical order. If any names of this class (50 years or more) have been omitted please advise us.

Joseph L. Lemberger, Lebanon, Pa.	1858
George J. Waugh, Stratford, Ontario	1862
John F. Hancock, Baltimore, Md.	1863
(President, A. Ph. A., 50 years ago)	
Alfred Mellor, Philadelphia, Pa.	1864
John H. Winklemann, Baltimore, Md.	1864
John Best, Denver, Col.	1866
Charles F. Fish, Saratoga Springs, N. Y.	1866
James Vernor, Detroit, Mich.	1866
Charles F. Chandler, New York, N. Y.	1867
John McKesson, Jr., New York, N. Y.	1867
Adolph W. Miller, Philadelphia, Pa.	1868
Charles A. Weideman, Philadelphia, Pa.	1868
Edward Mallinckrodt, St. Louis, Mo.	1869
James S. Robinson, Memphis, Tenn.	1869
William H. Rogers, Middletown, N. Y.	1869
J. U. Lloyd, Cincinnati, Ohio	1870
William H. Wickham, New York, N. Y.	1870
John W. Ballard, Davenport, Ia.	1871
Solomon Boehm, St. Louis, Mo.	1871
Louis P. Ohliger, Detroit, Mich.	1871
George H. Schafer, Ft. Madison, Ia.	1871
George A. Crossman, Taunton, Mass.	1872
Thomas D. McElhenie, Brooklyn, N. Y.	1872
E. L. Patch, Stoneham, Mass.	1872
Henry C. Porter, Towanda, Pa.	1872
Frederick B. Power, Washington, D. C.	1872
John Hepburn, Flushing, N. Y.	1873

Senator E. F. Ladd of North Dakota and **Congressman John W. Summers** of Washington have exhibited their interest in the resolutions submitted by the American Pharmaceutical Association at its convention in Cleveland.

Dr. Milton C. Whitaker, formerly of Columbia University, now managing vice-president of the U. S. Industrial Alcohol Company, has been awarded the Perkin medal. **Dr. Charles F. Chandler** will make the presentation January 12, 1923.

Prof. Edward Spease and **Theodore D. Wetterstroem** were honored guests and speakers at the meeting of Columbiana County Pharmaceutical Association (Ohio). **T. E. Flick** of East Liverpool is president of the Association.

Rev. Dr. Robert J. MacAlpine, pastor Central Presbyterian Church, Buffalo, addressed the members of Greater Buffalo Drug Club. Dr. MacAlpine is a graduate of Ontario College of Pharmacy and for a number of years was owner of a drug store in Canada.

Robert N. Harper, a graduate in pharmacy, but for a number of years president of the District National Bank of Washington, D. C., was one of the speakers at the District of Columbia Retail Druggists' Association at the annual dinner; 300 members and invited guests were present.

Prof. Robert E. Morse and **H. J. Rodenberger** have been added to the faculty of New Jersey College of Pharmacy; the former has charge of the pharmacognosy laboratory.

Fred A. Jacobs, of Toronto, has been chosen secretary of the Canadian Pharmaceutical Association to succeed G. E. Gibbard, who has retired on account of ill health.

Chester G. Fuss, until recently drug chemist at the Kentucky State Experiment Station, Lexington, Ky., is the holder of the Frederick Stearns fellowship in the College of Pharmacy of the University of Michigan for 1922–23. The work on pepsin standardization will be continued under this fellowship.

Miss Irene, daughter of **Dr. and Mrs. Jacob Diner,** was recently married to Lawrence Koenigsberg of Washington, D. C. The young couple will make their home in Washington. Dr. Irene Koenigsberg (nee Diner) was formerly attached to the division of industrial chemistry at New York University, and more recently connected with the research division of the Chemical Warfare Service at Washington.

Dean H. H. Rusby lectured to the women of New York College of Pharmacy at their initial social meeting of the season, on "The Life of Women in South America." Two poisoned arrows, drawn from the bodies of two men who accompanied Dr. Rusby on one of his former expeditions, were among the exhibits.

Prof. C. C. Glover has returned from his leave of absence spent at Columbia University, and has resumed his duties as secretary of the College of Pharmacy, University of Michigan, and professor of pharmacognosy.

Dr. A. R. L. Dohme has been appointed one of the representatives of the Citywide Club of Baltimore on the Crime Commission.

Harry Dolson, of Nogales, Ariz., went to a California beach town three years ago and bought a drug store for $3,500. A few weeks ago he sold it for $22,500.

Dr. L. van Itallie, president of the International Pharmaceutical Federation, is professor of chemistry and pharmacy at the University of Leyden. He is president of the Pharmacopoeia Committee of the Netherlands, a member of the Central Sanitary Council for the Netherlands, director of the Pharmaco-Therapeutical Institute.

Dr. J. J. Hofman, secretary of the International Federation of Pharmaceutical Societies, after studying at the University of Leyden, began his career as pharmacist to the Amsterdam Hospital, and in 1892 established himself in business at The Hague. For some years he was president of the Dutch Pharmaceutical Society, and as a delegate of that Society to the Congress of Brussels was deputed to propose the formation of an international federation, of which he is now secretary. Dr. Hofman also acted as general secretary to the Congress at The Hague in 1913. He is co-editor of the Dutch *Pharmaceutical Journal*, and is a recognized authority on such matters as pharmaceutical law, health insurance, etc. He holds the degree of Doctor of Pharmacy.

Dr. Royal C. Copeland, U. S. Senator-elect from New York, has been Commissioner of Health for a number of years. Of late years there has been an increasing tendency to make the Health Commissioner, outside of his administrative duty, a sort of mentor to the community in matters of preventive medicine, and Dr. Copeland has contributed largely in this work.

The writings of **Walter Henry Cousins** have been published by Arthur S. Mathias of Dallas, Texas. The author's motto is, "Do not hand the world a frown when smiles cost nothing the million; the corpse never had any fun out of the flowers." A daughter of Editor Cousins has contributed several poems which have been published in the press; she is a student at Texas State University.

An unfinished O. Henry story has just been discovered in Austin, Texas, in one of the old account books of the Morley Drug Company for which O. Henry once worked. A young law student of the University of Texas, while auditing the books for the Morley Drug Company, has found what appears to be the beginning of a story by O. Henry written in the back of an old ledger. It is one and a half pages in length and is the sketch of a sick old man who is cared for by a young girl, perhaps his daughter.

Our fellow-member, **H. L. Carleton** of Taylor, Texas, was for many years manager of the store above referred to, and during the period of the author's employment in this establishment.

Dr. Francis W. Pennell, curator of the botanical department of the Philadelphia Academy of Natural Sciences, has returned from an expedition through the western part of Colombia, S. A. Over 30,000 botanical specimens were gathered, many of them new to science.

The party was made up of Dr. and Mrs. Pennell, Dr. Tracey E. Hazen, of Columbia University, and Ellsworth P. Killip, of the U. S. Natural Museum. The expedition was undertaken jointly on behalf of the Academy of Natural Sciences, Philadelphia, the U. S. National Museum at Washington, Harvard University and the New York Botanical Gardens.

The Journal of Industrial and Engineering Chemistry has reviewed the last volume of the A. Ph. A. YEAR BOOK. Part of the review is quoted:

"Notable among the features of the present volume of the YEAR BOOK is the larger number of abstracts of foreign pharmaceutical publications than has appeared in any of the previous editions since 1914. Under the general heading, 'The Progress of Pharmacy,' 692 pages are devoted to abstracts of the literature of pharmacy for 1920, classified under four general heads, Pharmacy, Materia Medica, Inorganic Chemistry, and Organic Chemistry, and 22 subheads. The whole has been carefully indexed to form an authoritative work of reference for the pharmacist."

A Drug and Chemical Square Club has been formed in New York, Thos. R. Freebody being president, and Wm. B. Moore, secretary. This club, although in the embryonic stage, counts members from twenty different states. Many prominent men have joined, among whom we note many members of the American Pharmaceutical Association. More than 600 members have been enrolled.

The American Druggists' Fire Insurance Company Executive Committee, at its last quarterly meeting of the year, was enabled to announce over 41 million insurance in force and assets of nearly a million—quite a showing for a youthful organization.

Druggists in Jersey City and adjacent municipalities in New Jersey are doing systematic, coöperative advertising. This, it occurs to us, is good business judgment—for it will increase trade without lessening that of any store, and the coöperation will have a good effect on the public.

The Abbott Laboratories of Chicago have purchased the Dermatological Research Laboratories of Philadelphia. The new plant in the latter city will continue in operation.

William J. Gesell, secretary of Lehn and Fink, died November 20; his son, William H. Gesell of the same firm, is a member of the A. Ph. A.; sympathies are extended.

Ernest S. Ely, a druggist of Barnesville, Ohio, died at his home recently after an illness of several weeks. He was sixty-two years old, and for many years he had been a partner in the drug firm of Ely and Wilson. He is survived by his widow and two daughters. Mr. Ely joined the American Pharmaceutical Association in 1904.

William M. Oliver, president of Oliver & Drake Co., Elizabeth, N. J., died August 23, 1922. The deceased joined the American Pharmaceutical Association in 1875; he was a Life Member of the Association.

SOCIETIES AND COLLEGES.

RESEARCH GRANTS OF AMERICAN PHARMACEUTICAL ASSOCIATION.

The following grants for 1922–1923 of the American Pharmaceutical Association have been made, according to Chairman H. V. Arny:

To D. I. Macht, Baltimore, Md., for pharmacological work on benzyl compounds, $200.00; to Albert Schneider, Portland, Oregon, for chemical and pharmacological work on *Chaparro Amargosa* and on Sodium Cinnamate, $200.00.

THE BALLOT FOR OFFICERS A. PH. A.

No votes will be received after January 15, 1923, for officers to be installed at the Asheville meeting. Only dues-paid members are entitled to vote; remittances for dues should be sent directly to E. F. Kelly, Treasurer, Lombard and Greene Sts., Baltimore. Dues-paid members for 1923 will be entitled to receive Volume 10 of the YEAR BOOK.

HISTORY OF DRUG JOURNALS OF UNITED STATES AND CANADA.

Francis B. Hays has in preparation for the Historical Section of the A. Ph. A., a contribution giving the history of drug publications. Information concerning such drug journals—house organs or others—as may have been published but are now consolidated with other journals or are entirely out of existence is also sought by Mr. Hays, who would appreciate any help in the matter. He should be addressed at 100 William Street, New York City.

THE COUE CULT.

Emile Coue, the French healer (?) and teacher of Nancy, is a pharmacist. He was born in Nancy, about 65 years ago, of humble parentage. He began his career as drug clerk in his home town and, later, became a successful pharmacist. He contemplates a visit to the United States. He is not a faddist nor a crank or charlatan; he does not pretend to be a profound scientist or philosopher; his distinguishing characteristic—modesty, has endeared him to his hundreds of thousands of personal followers. In practice his method is simplicity itself, so simple in fact that it is often frowned on by the skeptical as childish or even silly. His service is given free and freely and many are waiting daily to confer with him. His life has been spent in the city of his birth, and he is a man of considerable means.

THE ILLINOIS PHARMACEUTICAL ASSOCIATION.

The semi-annual meeting of the Executive Committee of the Illinois Pharmaceutical Association was held at the University of Illinois School of Pharmacy on Thursday, November 10, with a full attendance. It was decided to hold the next annual convention of the Association on one of the big lake boats making a four-day trip on the great lakes and beginning Tuesday, June 19. A budget for the coming year amounting to $3,010.00 was approved. Affiliation with the American Pharmaceutical Association on the basis of the new reorganization plan was voted. Various legislative matters were discussed and referred to the Legislative Committee. President Antonow in his address to the committee dwelt particularly on the importance of organizing the pharmacists of the down-state cities and counties as local units of the state association and offered to visit city or county meetings with a view to aiding in such organization.

W. B. DAY, *Secretary.*

OFFICERS OF STATE PHARMACEUTICAL ASSOCIATIONS, 1922–1923.

(*Continued from p. 763, September 1922.*)

(Secretaries of associations are asked to make corrections and send in list of officers, and names of next convention city.)

IDAHO.

President, C. O. Ballou, Boise.

First Vice-President, B. M. Hines, Pocatello.

Second Vice-President, Sidney H. Woodcock, Coeur d'Alene.

Third Vice-President, R. P. Cutting, Weiser.

Secretary, T. M. Starrh, Boise.

Treasurer, G. S. Maddox, Gooding.

The place of meeting for 1923 is Pocatello, October 11–12.

NORTH DAKOTA.

President, W. H. Itrich, Hebron.

First Vice-President, Ray Stinson, Pembina.

Second Vice-President, P. H. Costello, Cooperstown.

Secretary, W. F. Sudro, Agricultural College.

Treasurer, W. S. Parker, Lisbon.

The place of meeting for 1923 is Bismarck, August 7–9. *Local Secretary*, Bert Finney.

SOUTH CAROLINA.

President, T. P. Young, Greenwood.

First Vice-President, R. M. Dacus, Greenville.

Secretary-Treasurer, Frank M. Smith, Charleston. Mr. Smith has held the office for twenty-three consecutives years.

The place of meeting for 1923 is Greenville, joint session with North Carolina Association.

SOUTH DAKOTA.

President, J. C. Schutz, Madison.

First Vice-President, H. D. Sanders, Huron.

Second Vice-President, Mrs. C. B. Conkey, Wessington Springs.

Secretary, E. C. Bent, Dell Rapids. This completes Secretary Bent's 25th year as secretary, and he has signified that he will retire next year.

Treasurer, A. A. Woodward, Aberdeen.

The place of meeting for 1923 is Aberdeen. *Local Secretary*, A. A. Woodward.

TENNESSEE.

President, W. J. Cox, Memphis.

First Vice-President, D. S. Sanders, Nashville.

Second Vice-President, John S. Sheehan, Memphis.

Third Vice-President, Thomas D. Turner, Henning.

Secretary, D. J. Kuhn, Nashville.

Treasurer, W. S. Sewell, Jr., Nashville.

The place of meeting for 1923 is Tate Springs, July 17, 1923.

A COLLEGE OF PHARMACY PROPOSED FOR THE UNIVERSITY OF CINCINNATI.

A proposal has been submitted to the University of Cincinnati to establish a college of pharmacy. The offer has been made, as we understand it, with a guarantee that there shall be no cost attached for the University. The Cincinnati *Commercial Tribune* comments editorially; the last paragraph is here reprinted:

"Universities grow by steps that follow each other as necessities blaze the way and appreciation makes feasible. Pharmacy is among the most important of modern professions. On the surface the offer of a college of pharmacy as a free-will gift to the university would seem to fall in admirably with university growth. The city of culture growing up within, and as crown of, the Queen City is young in traditions, but none the less jealous in standard. The purpose no less than the generosity of all proposals in benefaction is to be weighed in the balance. This is purely precautionary; in no sense invidious. The plan of a college of pharmacy building has an attractive perspective."

THE UNIVERSITY OF WISCONSIN PHARMACEUTICAL EXPERIMENT STATION.

BIOGENESIS OF OIL OF PEPPERMINT.

Bulletin I.

The work for the academic year 1922–23 on the coöperative research into the Biogenesis of Oil of Peppermint has been organized. Dr. Roland E. Kremers, who resigned as assistant professor of organic chemistry at Vanderbilt University in order to accept a National Research Council Fellowship, has assumed immediate charge and is devoting himself especially to the chemical problems. Mr. G. C. Tenison, Fritzsche Brothers Fellow, is helping him in the laboratory. The Department of Genetics of the College of Agriculture, Professor Cole, Chairman, is assisting with the plant-breeding studies involved. Professor Brink of this department is supervising this work and has the assistance of Mr. F. J. Bacon, holder of the A. M. Todd Fellowship. Mr. Bacon has come to the University of Wisconsin after two years' service in charge of the botanical department of Eli Lilly & Co. In addition, problems of botanical taxonomy

will be passed upon by Prof. R. N. Denniston of the Department of Botany.

One of the chief events to date has been the safe arrival of two imported plants of Japanese peppermint, which were obtained through the courtesy of Mr. Watermeyer, President of Fritzsche Bros., Inc., and of Mr. G. R. Wattles, Jr., Colon, Mich. They have been entrusted to the care of Mr. Bacon and are doing well in a greenhouse belonging to the Department of Plant Pathology, which has generously donated space for our winter work indoors. Next spring their numerous off-shoots will be transferred to the Gardens of the Station under the care of Prof. W. O. Richtmann and will thus become a part of the large amount of valuable material which is being grown for this research. The acquisition of these plants is doubly interesting since it was a result of an investigation by Dr. Kremers two summers ago of a spurious Japanese peppermint oil that the possibilities of the present research were discovered.

On October 6 the research workers of the Station held their first weekly conference. Dr. Kremers gave a résumé of the inception of the Biogenesis of Oil of Peppermint problem and of the published results. (*Jour. Biol. Chem.*, 50, 31, 1922, and 52, 439, 1922.) Besides pointing out the necessity of the proposed work in experimental breeding, he mentioned the following important lines for development in the chemical studies:

1. Verification of all previous work.
2. Elimination of non-hereditary variations in the oils by complete analyses over a period of years.
3. Detection of compounds indicated as being intermediates in the elaboration of the oils.
4. Determination of the composition of oils at various stages of growth.
5. Study of *in vitro* transformations involving important biochemical reactions, especially
   - *a*. Condensations.
   - *b*. Hydration and dehydration.
   - *c*. Autoöxidation and reduction.

In the discussion that follows the report, Prof. Richtmann pointed out the unsatisfactory state of the botanical synonymy of the mints. If Tschirch's *Mentha citrata* Ehrh. and *M. aquatica* L. are really synonymous, it is rather difficult to see how *M. citrata*, a southern species, could be a parent of the northern peppermint. Prof. E. Kremers pointed out that the study of oils at different stages of development has led to contradictory results as regards the successive changes in the elaboration of the oils.

THE PHARMACIST AND THE LAW.

FOOD AND DRUGS ACT REGULATIONS.

Important changes in the rules and regulations for the enforcement of the Federal Food and Drugs Act. *Circular 21*, eighth revision, was issued August 7, and all pharmacists should have a copy. The National Wholesale Druggists' Association, in its *Bulletin* of September 23, comments on some of the changes and part of them are here reprinted:

A new procedure has been announced in these regulations and is found in Regulation 3, Paragraph (*f*) which reads as follows:

> Establishments in which foods or drugs are prepared in whole or in part for sale in the Territories or District of Columbia or for transportation in interstate or foreign commerce may be inspected by any authorized agent of the Department of Agriculture.

Regulation 8 sets forth the standards for drugs and the manner of labeling them. A feature that is new in this connection is that where articles are not U. S. P. or N. F. they must so state. There is a question that arises here as to the desirability of ever stating what an article is not, especially when deviations from the standard are specifically set forth. It is probable that this section will be clarified by a subsequent ruling.

Regulation 20 requires that "imitations" bear on the label the word "imitation." "Compounds" and "blends" shall also state such, in the case of foods together with a list of the principal or essential ingredients.

Regulation 6 covers the form of guaranty that should be given by manufacturers on invoices. It is specifically stated that legends such as "Guaranteed under Pure Food and Drugs Act of 1906" shall not appear on any labels.

Careful consideration should be given to Regulation 14 concerning labels. The term "label" includes all matter appearing on the package as well as all circulars and pamphlets accompanying such package.

PROHIBITION BOND DEMANDS PROTESTED BY DRUG INDUSTRIES.

A press item of October 26 states that Official Washington is being flooded with protests against the recent internal revenue regulations relating to bonds for alcohol permittees under the prohibition law. President Harding himself is understood to have received a long letter on the subject from Samuel L. Hilton, former president of the American Pharmaceutical Association, and officers of the Treasury Department are being swamped.

Attorneys for the various drug and related associations have instructed their members to file written protests against the requirements when they submit their bonds, and particularly against the 25 percent forfeiture provision, for fear that failure to enter such formal protests might be construed as an agreement to or acceptance of the regulation which, it is rumored, prohibition officials doubted their right to issue.

Treasury Decision 3410 has been issued amending T. D. 3398.

MISLEADING STATEMENTS AND UNNECESSARY LAWS.

Whenever false impressions are made upon the public by bulletins of the Government these should, as far as possible, be corrected, just as individuals or corporations are obliged to correct misleading statements. Actions of importance not sustained by the Government weaken its cause. Standing together of organizations when the cause is just will strengthen them in the minds of the people. It is, therefore, a source of gratification that the Prohibition Commissioner has denied the purpose to curtail legitimate use of alcohol. How far the Department will go in an effort to correct impressions made on the public remains to be seen. What is needed by the Department is an advisory body composed of experienced men, representative of the interests affected by regulations it is proposed to issue. Some of the regulations issued are complex and impractical, and some are not known of or understood by those concerned until too late.

New South Wales has a program in hand to repeal laws which have worked badly. If we can have a rest from new legislation, and give Congress and Legislatures a vacation, normalcy may come as a result.

SECOND NARCOTIC CONFERENCE.

The second narcotic conference, under the auspices of the special committee of the A. M. A., was held in New York City November 8. Organizations of all the drug industries were invited to send representatives, and most of them were represented. Some changes were made in the draft for a model narcotic state law, presented by the Special Committee appointed at the first conference.

The model, as amended, is printed in this issue of the JOURNAL, pp. 1067–1071.

ALCOHOL DENATURANT FOR ARNICA TINCTURE RECALLED.

Special denatured alcohol, formula No. 47, may no longer be withdrawn for use in the manufacture of tincture of arnica, N. F. It may, however, continue to be withdrawn and used for the manufacture of liniments for external purposes pursuant to approved formulas.

DRUGS "AS IS" AND PURITY STANDARDS.

Recently a quantity of drugs and medicinal supplies were sold from surplus army stocks. Some army surplus sales catalogs or announcements contain this statement:

"All property listed in this catalogue at said auction will be sold 'as is' and 'where is,' without warranty or guarantee as to quality, character, condition, size, weight or kind, or that the same is in condition or fit to be used for the purpose for which it was originally intended [etc.]."

Secretary Homer W. Smith, of the American Drug Manufacturers' Association, has written the Medical Department of the Army in part as follows:

"The laws of the nation and many state laws provide standards for medicinals, and not only as a matter of law but as a matter of principle it does not seem to me to be right or fair to the consuming public for any branch of the government, or any one, for that matter, to offer medicinals for internal administration 'as is' when it is so easily possible to make sure that they do or do not conform to the accepted standards."

The Bureau of Weights and Measures of Philadelphia reports that since it began work in 1914 it has confiscated and destroyed approximately 25 tons of false weights and measures.

BOOK NOTICES AND REVIEWS.

The following book reviews have been prepared and contributed by Otto Raubenheimer, Ph.M.

Women in Chemistry. A Study of Professional Opportunities. Octavo. 272 pp. Paper, $1.10. Cloth, $1.60. The Bureau of Vocational Information, New York City. 1922.

The Bureau of Vocational Information is a research and educational organization established to study the opportunities for training and for professional employment of women, to supply educational institutions with information concerning the occupational opportunities and needs of women, and to help women to choose wisely and prepare adequately for their fields of work.

The volume before us is No. 4 of "Studies in Occupations," previous volumes dealing with Law, Statistical Work and Positions of Responsibility in Department Stores. The book is based upon information from more than one thousand sources and gives information regarding the varied character and wide scope of the woman chemist's work. It analyzes the preprofessional or undergraduate training, and the professional preparation that is becoming increasingly necessary for ultimate success in scientific work in this profession.

In the appendix will be found a list of scientific societies which admit women chemists, and a list of the important fellowships, suggestive of the many opportunities for postgraduate study. On p. 267 the AMERICAN PHARMACEUTICAL ASSOCIATION, and on page 247 its Research Fund are duly mentioned, and on p. 262 the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION is listed under Scientific Publications of Interest to Chemists.

This report should be read by all teachers and students of chemistry, and by all deans, vocational counselors and advisors of girls and women who wish to be informed about professional opportunities in the growing field of chemistry.

Who will write a book on "Women in Pharmacy" next?

Applied Chemistry. An Elementary Text Book for Secondary Schools by Fedus N. Peters, Ph.D., author of "Chemistry for Nurses," etc. 12 mo. 461 pp. Cloth, $3.50. St. Louis, C. V. Mosby Co., 1922.

No dinner menu is complete which offers nothing but lean meat and vegetables. It may thus contain all that is essential, but far from all that is desired. Entrees and desserts round out the meal and give a sense of satisfaction not otherwise possible. Such is the attempt of the text before us, namely, to present the chemical facts of every-day life in a readable form and by so doing make them interesting. On the other hand no one at a table d'hote dinner is expected to order everything on the bill of fare. Let him use judgment and discretion, the teacher likewise with this book.

The author has been Instructor in Chemistry in Central High School, Kansas City, Mo., for almost a quarter of a century and thus gained vast experience in what a high school student should learn about chemistry. The book is divided into 37 chapters, each being followed by Exercises for Review in the form of questions. The 72 illustrations help to make the text still more lucid. We want to call special attention to the Appendix containing Tables for Reference and Glossary, among which the following are noteworthy: Solubilities of Common Compounds, Chemical Terms and Common or Commercial Names.

The book is written in a very clear and plain style and can also be used by pharmaceutical students and pharmacists.

The Norman W. Henley Publishing Company, New York City, have submitted the following two books for review:

Perfumes and Cosmetics, Their Preparation and Manufacture, by George William Askinson, Druggist, Chemist, Manufacturing Perfumer. 5th Edition. Octavo. 392 pp. $6.00.

The perfume industry of to-day is more important than at any time in its long and honored career. Beginning centuries ago probably in the first of a real civilization, with the preparation of a few odorous gums and woods and their adaption to the purposes of the toilet, it has gradually expanded until we find it now an industry which touches upon many fields of human endeavor.

From the 52 chapters of the book we will quote the following headings: History of Perfumery; Aromatic Vegetable and Animal Substances Used in Perfumery; Chemical Products; Adulteration of Essential Oils and Their Recognition; Synthetic Products; Formulas for Handkerchief Perfumes, Sachets, Creams, Pastes, Hair Tonics, Preparations for the Skin, Nails, Hair and Mouth; Colors Used in Perfumery; Aging of Perfumes; Mineral Oil and Substitutes.

Being written by a manufacturing perfumer with long experience the book contains a lot of practical advice which can be utilized to a good advantage by the reader. We can also recommend this book to pharmacists, who want to perfect themselves as to perfumes and cosmetics.

A Course in Mechanical Drawing for School Use and for Self-Instruction. By Louis Rouillion, B.S., A.M. 92 pp. $1.50.

The author is director of the Mechanics Institute, New York City, and, by the way, is the son of Octave A. A. Rouillion, one of the oldest pharmacists in New York state, who died at the age of 85 on September 1, 1918, in Brooklyn.

The book is now in its 15th edition, revised and enlarged. It is a practical treatise on the art of making drawings, lettering and dimensioning, which can be used with profit by the pharmacist and druggist in his advertising signs.

PUBLICATIONS RECEIVED.

Origin and History of the Botanical Drugs of the United States Pharmacopoeia. Published by the American Drug Manufacturers' Association, 449 pages, bound in tan buckram, illustrated by 18 pages of halftones, comprising 28 separate illustrations in all. Price, $6.00. Orders should be addressed to the American Drug Manufacturers' Association, 507 Albee Building, Washington, D. C.

"Four years' work were given to the preparation of this work by Prof. J. U. Lloyd and his collaborators. Every botanical drug of the present and past revisions of the U. S. P. is represented by an article which gives information heretofore often difficult, or impossible, of access; such as the geographic distribution of the plant; the various popular designations of the drug; its therapeutic repute from earliest times to the present; the vicissitudes through which it passed on its way to professional recognition; its origin, sometimes legendary, sometimes historical; the research that led to our present pharmaceutical and medical knowledge of the drug, and so on through a wide variety of data."

Preparations for the work herewith presented were made early in 1917 by the American Drug Manufacturers' Association; the Committee placed in charge of the undertaking was composed of Messrs. A. R. L. Dohme, J. M. Francis and J. U. Lloyd. Both the Association and the Committee speak for the research and reference value of the work. Volume II, relating to Chemicals and Preparations, is being prepared.

Chemical Engineering Catalog, Francis M. Turner, Jr., Technical Editor. Published by The Chemical Catalog Company, Inc., 19 E. 24th Street, New York. About 1200 pages, flexible leather cover. Price, $10.00, also leased at $2.00 per copy to chemists, chemical engineers, etc. The volume is published annually under the supervision of an official committee, appointed by the American Institute of Chemical Engineers, the American Chemical Society and the Society of Chemical Industry.

Using the description given in the book, which is in no way overdrawn, the Catalog is a compilation of data of manufacturers supplying the field, supplemented by a general classified directory of equipment, supplies and materials in one volume—representing in abstract, individual catalogs, indexed and assembled.

The Company has established an Information Bureau Service. The service includes furnishing of names and addresses of manufacturers and sources of supply; market information, uses of various chemicals and materials; statistics and miscellaneous information.

More than 200 pages (7 x 10, 3 columns) are given an alphabetical list of chemicals, and from whom and where they may be obtained. Many pages are given to illustrations of apparatus and explanation of uses, by whom manufactured, etc.

More than 1200 books relating to the industries are listed and described; there is a subject index also, so that information may be had without going through the full list of books or of authors' names. The term catalog is somewhat misleading; it is a catalog, but much more—information is given on practically every item that is cataloged.

Getting More Drug Store Business. By Frank Farrington. Twenty-four instructive chapters telling how to get new customers, meet competition, have the best clerks, make the fountain successful, sell sundries, etc. About 200 pages, $4^1/_2$ x $7^1/_4$. Cloth. Price, $1.50. The Spatula Publishing Company, Boston 14, Mass.

Research in Industry: The Basis of Economic Progress. Arthur Percy, M. Fleming and J. G. Pearce. 244 pp. Illustrated. Price, $4.00. Isaac Pitman & Sons, New York.

"SEYDEL" FINE CHEMICALS

OF INTEREST TO ALL

PHARMACEUTICAL MANUFACTURERS

BENZYL SUCCINATE "SEYDEL" A. M. A.—An effective benzyl derivative in form of white crystals. Many firms sell quantities of this product in 5 grain tablets.

MOBENATE (SODIUM MONO BENZYL SUCCINATE "SEYDEL")—A soluble benzyl derivative that can be combined with other medicinal products—has successfully replaced narcotics for relief of colics, etc. Very effective in relieving dysmenorrhea, whooping cough, seasickness, etc.

BENZOCAINE "SEYDEL" (ETHYL AMINO BENZOATE)—This is a very effective oil-soluble local anesthetic that finds its greatest use in troches for sore throat and irritation of throat and palate. Very effective in relieving pain of hemorrhoids when combined in suppositories.

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Benzoic Acid "Seydel" and Sodium Benzoate "Seydel" are Chlorine Free and have been a standard for past six years

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IMPORTANT ANNOUNCEMENT TO THE DRUG TRADE

THE ABBOTT LABORATORIES takes pleasure in announcing the purchase of the property, good-will, equipment and products of the DERMATOLOGICAL RESEARCH LABORATORIES of Philadelphia, where it will continue the manufacture of the well-known "D. R. I." brands of ARSPHENAMINE and NEOARSPHENAMINE.

Dr. George W. Raiziss, head of the Department of Chemistry, will continue to direct the production of these products, assisted by his entire corps of trained chemists in the Dermatological Research Laboratories.

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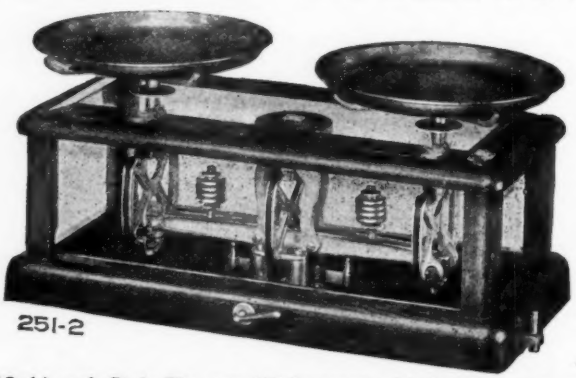

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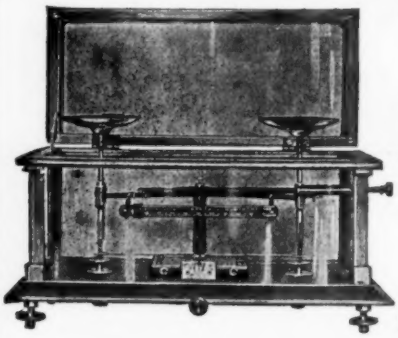

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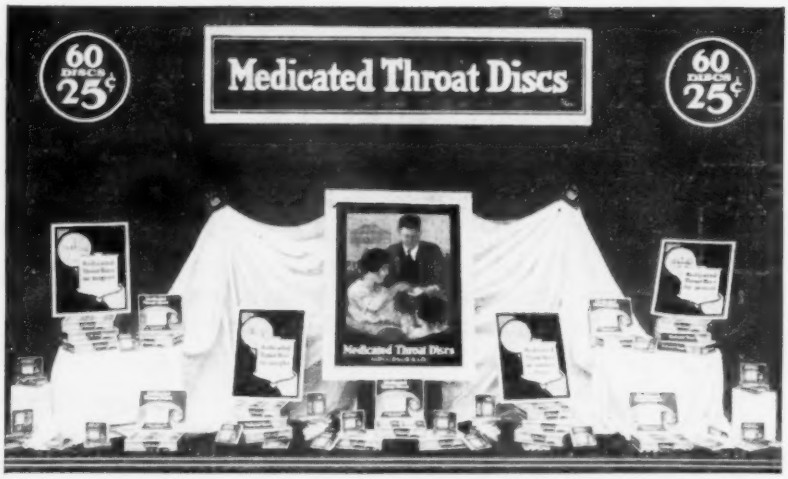

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